DO RELATIONAL DIFFERENCES IN DEMOGRAPHICS AND WORK VALUES RESULT IN CONFLICT AND BURNOUT IN THE NURSING WORKFORCE?

by

ANGELA CHRISTINE WOLFF

BScN, McMaster University, 1991
MSN, University of British Columbia, 1998

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

in

THE FACULTY OF GRADUATE STUDIES

(Nursing)

THE UNIVERSITY OF BRITISH COLUMBIA

(Vancouver)

September 2009

ABSTRACT

The consequences of diversity have not been formally considered as contributing to undesirable work environments in healthcare. I sought to address this gap by examining a conceptual model that explains how diversity within the nursing workforce gives rise to interpersonal conflict (*relationship* and *task*) within workgroups, which in turn, is linked to burnout (emotional exhaustion, depersonalization, and diminished personal accomplishment). Diversity was defined as the degree of relative difference or dissimilarity between an individual and other workgroup members on select attributes, which in this study were age, education, ethnicity/race, and work values.

Using a cross-sectional survey design, data were taken from a population-based sample of 603 nurses (registered nurses and licensed practical nurses) (80% response rate) in two acute care hospitals in British Columbia, Canada. At the individual level of analysis, a two-step approach to latent variable modelling was used: (a) factor analysis techniques to test and establish the validity of the measurement model and (b) structural equation modelling to test the hypothesized model.

Partial support for the proposed model was found for both the direct relationships between diversity and burnout as well as the mediating effects of interpersonal conflict. Overall, the results indicated that *perceived* diversity explained a greater percentage of the variance in burnout compared with the explanatory power of *actual* diversity. Specifically, *perceived* work values and educational diversity were the most important explanatory variables of depersonalization (Pratt index = 58% and 21%, respectively) and were similarly predictive of diminished personal accomplishment (Pratt index = 69% and 35%, respectively). Emotional exhaustion was solely (Pratt index = 100%) explained by *perceived* work values diversity; however, the total variance explained was very minimal. Both individuals' involvement in *relationship* and *task* conflict were the predominant mediating variables of the relationships between *perceived* work values diversity and emotional exhaustion (59% and 76% total mediation, respectively), depersonalization (57% and 68% total mediation, respectively), and diminished personal accomplishment (28% and 32% total mediation, respectively). The implications of the study relate to nurses and decision-makers at the micro, meso, and macro level of practice to create a climate of support for, and acceptance of, diversity in healthcare workplaces.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF EQUATIONS

LIST OF ABBREVIATIONS

BC	British Columbia
CFA	Confirmatory factor analysis
CFI	Comparative fit index
CON	Conflict
CWV	Contemporary work values
CY	Cynicism
df	Degress of freedom
E/CFA	Exploratory factor analysis within the confirmatory factor analysis framework
EFA	Exploratory factor analysis
D-score	Euclidean distance measure
DIFFTEST	Chi-squared difference test
DSAge	Actual age diversity
DSEduc	Actual educational diversity
DSEth	Actual ethnic/racial diversity
DSVal	Actual work values diversity
DP	Depersonalization
EE	Emotional exhaustion
EPC	Standardized expected parameter change
LPN	Licensed practical nurse
MBI	Maslach Burnout Inventory
MBI-GS	Maslach Burnout Inventory – General Survey
MBI-HHS	Maslach Burnout Inventory – Human Services Survey
MI	Modification indices
ML	Maximum likelihood
PAge	Perceived age diversity
PA	Personal accomplishment
PC	Process conflict
PEduc	Perceived educational diversity
PEth	Perceived ethnic/racial diversity
PRS	Process
PVal	Perceived work values diversity
RC	Relationship conflict
REL	Relationship
RMSEA	Root mean square error of approximation
RN	Registered nurse
SD	Standard deviation
SEM	Structural equation modelling
SRMR	Standardized root mean residual
TC	Task conflict
TDM	Tailored design method
TLI	Tucker-Lewis index
TSK	Task
WLSMV	Weighed least squares estimation, mean and variance adjusted

ACKNOWLEDGEMENTS

Before I started this journey, I was told the key aspects of being successful would be perseverance and intellectual curiosity. While I now recognize that a passion for learning and personal tenacity is required, a project of this magnitude could not have been achieved without the dedication and expertise of my supervisor, Dr. Pamela Ratner, and the other members of my dissertation committee: Dr. John Oliffe, Dr. Sandra Robinson, and Dr. Linda McGillis-Hall. The high degree of respect, support, and commitment I received fostered my learning. Dr. Ratner was also extremely generous in her feedback and guidance in developing my scholarly writing abilities. I feel very fortunate to have had such an outstanding supervisor to guide me through my doctoral program of research. Collectively, my committee has shown me what is possible and has influenced my life in many ways, as well as in ways yet unknown. I thank the many professors that have fulfilled my desire for learning and inspired my ongoing passion for learning and research. Finally, I acknowledge the nurse educators who, during my undergraduate degree at McMaster University, provided a learning environment that fostered independence, self-directedness, and a spirit of inquiry necessary to be a successful graduate student, nurse, and researcher.

To the many individuals, in my personal life, who have accompanied me throughout my education journey, there are no words to fully express my gratitude. To begin, a heartfelt thank you to my husband, Blair; daughter, Miranda; my parents; other family members; friends; and colleagues. I value the perseverance all of you demonstrated while encouraging me to complete my studies. I also want to express my gratitude to my sister, Barb, and my friend, Eleanor, who was always willing to listen or assist with editing. A special thanks to Barbara Mildon who offered endless support and encouragement. Next, I appreciate the financial contributions I received from the Social Sciences and Humanities Research Council, the Michael Smith Foundation for Health Research, the Canadian Nurses' Foundation, NEXUS, the UBC School of Nursing, and the Xi Eta Chapter, Sigma Theta Tau International. Finally, a sincere thank-you to the participants of my study and the in-kind support received from the Fraser Health Authority. With this dissertation, I celebrate what feels right in the world, recognize my lifelong dream has been achieved, and submit myself to the vulnerabilities of being open to new possibilities.

A Special Message to Miranda,

Picture what you want. . . .
Pretend you are what you'd like to be.
Make a picture in your mind so you can see
that what you want can come true.
If you believe in your heart, it will come to you.

— Dr. W.W. Dyer

Thanks for always helping me to remember what is important in life.

I hope the perseverance, determination, and creativity that I have role-modelled will be an inspiration to you as your own life unfolds.

1 INTRODUCTION

Diversity in the workforce is a phenomenon experienced globally. The success of organizations and the well-being of their members are dependant on understanding the effects of human diversity. When diversity is embraced, differences in backgrounds, perspectives, and skills may provide advantages to individuals and organizations (e.g., job satisfaction, workgroup involvement, commitment, retention, improved problem solving and decision making, and creativity). Conversely, failure to consider the alignment of such human differences may lead to a poor fit between employees and their place of work. It is essential, therefore, to understand how such differences operate. In this study, I sought to advance this understanding by examining the impact of diversity in nursing workplaces.

1.1 Diversity in the Nursing Workforce

Historically, the Canadian nursing profession has been fairly homogenous; however, the attributes of the nursing workforce have changed significantly within the past 20 years. Most noticeable are changes in nurses' ages, education, ethnicity/race, and possibly work values, although this latter feature has not been well studied. These attributes, in part, reflect trends in the demographic characteristics of the Canadian population, changing policies in the educational requirements for entry to practice as a nurse (i.e., baccalaureate versus diploma preparation for registered nurses), fluctuations in the labour market, and national and organizational policies related to workforce equality and recruitment.

1.1.1 Age

There has been a significant shift in the percentage of nurses representing various age cohorts, with the highest proportion of the Canadian registered nursing workforce (68%) being between 40 and 65+ years of age. More specifically, Canadian registered nurses (RNs) who are 50 years of age and older currently represent 39% of the workforce, which is substantially greater than the1980 average of 16% (Canadian Institute for Health Information, 2008; Canadian Nurses Association, 2002). This means that one in three Canadian RNs is 50 years of age or older (Canadian Institute for Health Information, 2004). In 2007, Canadian RNs under 30 years of age constituted a mere 11% (Canadian Institute for Health Information, 2008), whereas in 1980, this age cohort made up approximately 30% of the workforce. Currently, the average age of RNs in British Columbia is 46.2 years (Canadian Institute for Health Information, 2008),

which has gradually increased by 2.2 years since 1999 (Canadian Institute for Health Information, 2004).

The trends observed in the licensed practical nursing[1] workforce in British Columbia are similar to those observed in the RN population. Almost two thirds (59%) of licensed practical nurses (LPNs) employed in British Columbia are 40 years of age and older (Canadian Institute for Health Information, 2008). The average age of LPNs in British Columbia is 42.3 years, which has declined slightly during the past five years (the average age in 2003 was 45.3 years) (Canadian Institute for Health Information, 2008). This trend is attributed in part to the increase in the number of LPNs entering the workforce who are under the age of 40. Although slightly younger than RNs, the average age of LPNs is still similar to the average age of the Canadian population (approximately 39 years).

The increase in the age of the nursing workforce can be attributed to several societal and labour market trends. A significant portion of the Canadian population is 40 years of age or older, resulting from the "baby boom" of the late 1940s to mid 1960s (Statistics Canada, 2007b). From 1970 to 1980, as the baby boomer cohort entered the workforce, the nursing workforce contained a greater percentage (47% to 56%) of nurses under 35 years of age represented the nursing workforce (Canadian Nurses Association, 2002). This cohort is now older and remains the largest group in the population. Although the age of nurses in British Columbia reflect the national population trends, the percentage of RNs aged 45 and older is higher than the national average: 56.3% compared with 26.3%, respectively (Canadian Institute for Health Information, 2008; Statistics Canada, 2007a). Another factor contributing to the age distribution of RNs is the labour trends of the 1990s, when there was significant downsizing in healthcare, and many nurses chose non-nursing careers or sought employment abroad. Accompanying the downsizing in healthcare was a reduction in the number of places in schools of nursing provincially and nationally in the mid-1990s, which was at its lowest in 30 years (Canadian Institute for Health

---

[1] There are three regulated nursing professions in Canada: registered nurses (RNs), licensed practical nurses (LPNs), and registered psychiatric nurses (RPNs). Each provincial and territorial jurisdiction in Canada has its own regulatory body for the regulation and licensure of registrants for each profession. As of 2007, there were 332,794 regulated nurses working in nursing in Canada, with the majority being RNs (78%) and to a lesser extent LPNs (21%). RPNs represent only 2% of regulated nurses. In British Columbia, RNs, LPNs, and RPNs are regulated and educated as separate professions (Canadian Institute for Health Information, 2008). Given the setting of this study in acute care hospitals, RPNs were excluded.

Information, 2005; Canadian Nurses Association, 2002). Another contributing factor to the aging trend of the nursing workforce is the age of nursing graduates. The average age of RNs seeking employment after graduation in 2006 was 27 years, compared to 23 years in the early 1980s. Moreover, the percentage of RNs aged 30 or older graduating from their initial nursing program has almost doubled since the 1980s (Canadian Institute for Health Information, 2007b). The same trend has occurred in the LPN workforce. For example, 54% of the LPN workforce who graduated between 2005 and 2007 were aged 30 or older (Canadian Institute for Health Information, 2008). Although nurses have always had to work with colleagues of different ages, in the current nursing workforce, a disproportionately large number of nurses from some age cohorts are represented, particularly those over 40 years of age. Accordingly, younger age cohorts of nurses are underrepresented. Those aged 40 years and over are in the majority and, as such, may be inordinately dominant in shaping the workgroup norms that have greatly influenced nursing practice for the past 30 years.

1.1.2   Educational Preparation

The educational demographics of those recently entering the nursing workforce, relative to those currently practicing, have also changed. Since the 1970s, changes in policies pertaining to entry-level RN education have shifted from hospital-based apprenticeship programs and diploma-based college programs to university baccalaureate degrees (Dussault et al., 1999). The majority of RNs (85% to 98%) who graduated in the 1960s to 1990s were educated in hospital- or diploma-based nursing programs (Ryten, 1997). In 1999, approximately 11% of the Canadian RN workforce had earned a baccalaureate degree before entering practice (Canadian Institute for Health Information, 2004). During the late 1990s, however, most of the Canadian provinces announced that a four-year baccalaureate degree would become the educational requirement for entry-level practice. In January 2006, all basic nursing education programs in British Columbia offered baccalaureate education as the entry-level requirement for practice as a RN. Consequently, 100% of RNs now entering the workforce are prepared at the baccalaureate level.

With the changes to entry-level educational requirements in addition to greater numbers of diploma-prepared nurses obtaining their baccalaureate degrees, there has been a gradual increase in the proportion of nurses within the workforce who have obtained a

baccalaureate degree as their highest level of education. For example, the percentage of RNs in British Columbia with a baccalaureate degree as their highest education in nursing has increased from 27% in 1999 to 41% in 2007. Approximately 33% of RNs employed in British Columbia hospitals hold a baccalaureate degree (Canadian Institute for Health Information, 2007b).

The entry-level educational requirement for LPNs is a diploma or its equivalent. Educational programs for LPNs are offered in postsecondary institutions; however, at one time the training was primarily delivered in hospitals (Canadian Institute for Health Information, 2008). Similar to RNs, the age at which students graduate from a licensed practical nursing program has also increased from 23 years in 1980 to 31 years in 2005. It is anticipated that the educational diversification of the nursing workforce will continue as prospective members of each regulated profession have differing entry-level requirements. The educational diversification of the registered nursing workforce will also continue until the currently employed diploma prepared members of the profession retire. The relative mix of nurses with these varied educational backgrounds may affect the prevailing philosophy of nursing service, the level of professionalism, and the degree of conflict resulting from different perspectives concerning the provision of appropriate nursing care (Dussault et al., 1999).

1.1.3 Ethnicity/Race

Another trend that warrants discussion is the increasing participation of ethnic/racial minorities in the nursing workforce. The exact ethnic/racial composition of the Canadian nursing workforce is unknown because the regulatory bodies and other national nursing groups do not collect these data. The world-wide rates of increasing global migration and immigration have contributed to the changing ethnic/racial demographics of the overall Canadian workforce, including the nursing workforce. The 2001 census indicated that the proportion of foreign-born Canadians was at its highest in 70 years (Statistics Canada, 2005). The visible minority population represents approximately 13% of Canada's total population (Canadian Council on Social Development, n.d.). In the Lower Mainland region of British Columbia, the number of people self-identifying with a visible minority group increased from 28% in 1986 to 37% in 2006 (Statistics Canada, 2006).

In addition to increased migration and immigration rates of visible minority groups, the targeted recruitment of internationally educated nurses has also contributed to the

ethnic/racial heterogeneity of the nursing workforce. The nursing workforce in British Columbia, for example, in comparison with those of the other Canadian provinces, has a high proportion of internationally educated nurses. From 2003 to 2007, approximately 15% of the RNs in British Columbia were educated in other countries, compared with the Canadian rate of 8% (Canadian Institute for Health Information, 2008). The source countries of immigration to the British Columbian RN workforce are the Philippines (31%), the United Kingdom (17%), the United States (7%), Hong Kong (5%), India (6%), Poland (3%), France (2%), and other countries (29%) (Canadian Institute for Health Information, 2008). The frequency of immigration from these identified countries has been somewhat consistent during the past 5 years (Canadian Institute for Health Information, 2004). Given the absence of citizenship and immigration data for LPNs, the location of graduation is often used as an indicator of trends in immigration. For LPNs working in British Columbia, only 3.3% graduated from an international nursing program, which is slightly higher than the Canadian average of 1.9%. Of the international graduates, the majority are from the United Kingdom (31%), the Philippines (18%), the United States (12%), and India (5%) (Canadian Institute for Health Information, 2008). Demographic changes in ethnicity/race are expected to continue with the strategy of recruiting internationally educated nurses to deal with the current shortage of nurses (Baumann, Blythe, Kolotylo, & Underwood, 2005) and the need for more ethnically diverse nurses to care for the increasingly ethnically diverse population in Canada (Canadian Nurses Association & Canadian Federation of Nurses Unions, 2004).

The evidence also suggests that a greater number of persons of ethnic minority status are enrolled in baccalaureate degree programs in British Columbia. A recent survey of nursing students in Canada indicated that 21% identified their ethnic background as "non-white" (1% First Nations, 3% black, 11% Asian, 1% Hispanic, and 5% other) (Bernard Hodes Group, 2006). In comparison, during the mid-1970s, ethnic minority groups represented about 1% of nursing students in Canada (Wong & Wong, 1980). Although national and provincial statistics of the ethnicity/race distributions of the nursing workforce are not available, given the changing immigration patterns of the general Canadian population, it seems reasonable to surmise that in the past 20 years there has been a gradual increase in the number of ethnic groups represented in the nursing workforce, particularly in large urban centres. At the same time, persons of ethnic minority status are, overall, still underrepresented in the nursing workforce relative to those who identify their ethnicity/race as "white."

1.1.4 Work Values

Another trend in the changing attributes of the nursing workforce is the changing landscape of nurses' work values. Accompanying the aforementioned demographic changes in the nursing workforce is likely to be variations in nurses' attitudes toward their work and careers. The work values of nurses may be associated with their age, educational preparation, or ethnicity/race. For example, individuals of different ages and countries of origin may have experienced different approaches to nursing in their educational programs or through legislative or regulatory requirements; consequently, they may hold values different from those of their colleagues (McNeese-Smith & Crook, 2003). The available anecdotal evidence indicates that nurses of different generational cohorts manifest different values in their approach to their work and careers. In the nursing literature, most of the current debate about differences in values among nurses is based on generational cohort theory. Generational cohort theory proposes that different generations hold different work values, and such differences may result in conflict, tension, and poor workgroup outcomes (Hu, Herrick, & Hodgin, 2004; Santos & Cox, 2000; Swearingen & Liberman, 2004); however, there is very little empirical evidence to support this claim.

1.1.5 Summary

Workforce diversity is not a phenomenon distinct to nursing; however, historically the nursing workforce has been relatively homogenous. A review of current trends indicates that the nursing workforce is becoming increasingly diverse in terms of age, educational background, ethnicity/race, and possibly work values. Although the nursing workforce is becoming increasingly diverse, there remains underrepresentation of by those under the age of 40, of ethnic minorities, and of those with baccalaureate degrees. Moreover, there has been speculation that the work values of new graduates are incongruent with those of nurses who have been in the profession for some time. Despite the changing landscape of the attributes of the nursing workforce, there is a lack of research that has critically examined the consequences of this increasing diversification.

1.2   Why Study Diversity in the Nursing Workforce?

Increasingly, scholars publishing in the general nursing literature support untested assumptions about the necessity of a workforce that is diverse in culture as a means of improving the quality of care received by ethnically diverse clients (Adams & Price-Lea, 2004; Nugent, Childs, Jones, Cook, & Ravenell, 2002; Shea-Lewis, 2002). In the nursing leadership literature, diversity, particularly in ethnicity/race and gender, is positioned as key to ensuring the success of a workgroup (Matus, 2003; Shea-Lewis, 2002). Although in some instances this may be true, there is substantial evidence from the organizational behaviour literature suggesting that, in certain situations, diversity may be problematic especially if not managed (Riordan, 2000; Tsui & Gutek, 1999; Williams & O'Reilly III, 1998). Despite the growing body of literature calling for further diversification of the nursing workforce, some researchers have emphasized the detrimental effects of diversity attributed to different generations of nurses working together. As a result of the values, beliefs, and attitudes that each generational cohort of nurses brings to the workplace, several researchers have indicated that tension and conflict can result (Duchscher & Cowin, 2004; Hu et al., 2004; McNeese-Smith & Crook, 2003; Swearingen & Liberman, 2004), yet none have tested this hypothesis. Others claim that nurses of different age cohorts vary in their job satisfaction, organizational commitment, intentions to leave the workplace, and frequency of stress and burnout (Apostolidis & Polifroni, 2006; Blythe et al., 2008; Lavoie-Tremblay et al., 2005; Widger et al., 2007); however, the implications of such differences also remain largely unexplored. Finally, whether these differences in values represent a cohort effect, age effect, or time effect has yet to be determined.

Although diversity has been researched extensively in the field of organizational behaviour, there is a paucity of research attention paid to the nursing workforce. Of the few studies that examined diversity in the nursing workforce, one concluded that nurses who *perceived* themselves as different in age, gender, and ethnicity/race were less involved in workgroup discussions and decision making, and did not feel respected, included, or heard (Hobman, Bordia, & Gallois, 2004). Greater diversity in work values also significantly predicts nurses' job dissatisfaction and lower intentions to stay in their jobs. Lower intentions by nurses to stay in their current jobs are also influenced by greater educational diversity (Gates, 2005).

The findings from a qualitative study of nursing teams in acute care hospitals established a strong connection between racial diversity[2] and team difficulties with communication and conflict resolution (Dreachslin, Hunt, & Sprainer, 2000). Based on these preliminary findings about the consequences of diversity for nurses, further investigation is warranted to assist in the retention of nurses (within their organizations and profession), create a climate of equity, and improve the quality of nurses' work-life and possibly client care.

Nursing educators, researchers, and administrators agree that problems with retention, particularly of nurses new to the profession, may be a larger issue than is currently recognized. Research about the health and well-being of nurses recognizes job stress, burnout, and mental health issues as key indicators of healthful work environments and as contributors to the retention of nurses (Blythe et al., 2008; Lavoie-Tremblay et al., 2008; Lowe, 2006; Stordeur, D'Hoore, & Vandenberghe, 2001). Overall, 20% of healthcare workers in British Columbia perceived their mental health as "poor," "fair," or "good" (Lowe, 2006). Specifically, reports of fair or poor mental health are higher among nurses aged 35 to 44 (7%) than among those aged 55 or older (4%). Almost one-quarter of nurses (22%) in British Columbia report that mental health issues have made it difficult to handle their current workloads (Shields & Wilkins, 2006). Slightly more than one-third of nurses (34%) experience high job strain (Shields & Wilkins, 2006). Given the potential costs associated with nurses' poor health and stress (e.g., absenteeism, lack of organizational commitment, turnover, and job dissatisfaction), research is necessary to explore the factors contributing to these outcomes, which if addressed, could lead to greater retention of nurses. As the largest cohort of nurses is nearing retirement at a time when a significantly smaller number of nurses exists to replace these individuals, various strategies must be developed to increase the supply and retention of nurses. Specific strategies may include recruiting ethnic minorities, extending the retirement age, attracting younger and second-career individuals, and offering flexible nursing educational programs to increase the number of graduates. Such strategies may result in further diversification of the nursing workforce (Gates, 2005).

---

[2] When reporting published research findings, I use the various authors' terms applied to the study of racial, cultural, or ethnic/racial differences. When discussing my hypothesis and findings, I use the term ethnic/racial diversity, which is further defined in Chapter 4.

Much of the research concerning the retention of nurses has focused on the demands of nurses' work, characteristics of quality nursing work environments, and the structures that influence the quality of nurses' work life. For the most part, the social conditions that contribute to undesirable work environments have received limited attention by nursing scholars. Of particular concern are interpersonal conflict among nurses (e.g., "horizontal violence" or "bullying"), unsupportive working relationships, and lack of respect evident in the workplace (Almost, 2006; Farrell, 2001; McKenna, Smith, Poole, & Coverdale, 2003; Stordeur et al., 2001). In Canada, both female and male nurses are exposed to hostility from or conflict with others within their workgroup (44% and 50%, respectively). Most nurses report that their coworkers are helpful in getting the work completed (95%); however, 47% do not feel supported by their coworkers (Shields & Wilkins, 2006). Given how much time people spend at work, being employed in an environment where individuals get along with one another is very important. To design retention strategies that address the root causes of unhealthy work environments and to improve the social aspects of the work environment, research is needed to identify the sources of conflict among nurses and the potentially detrimental effects of conflict on the psychological well-being of nurses.

In light of the changing demographics of the nursing workforce, it seems reasonable to speculate that the degree of diversity between an individual and other workgroup members may give rise to interpersonal conflict, and that such conflict, in turn, is linked to burnout. Positioned another way, conflict in workgroups resulting from individuals' dissimilarities in age, education, ethnicity/race, or values may be a source of stress for nurses, leading to burnout. Understanding the nature of the relationship between conflict and burnout in diverse workgroups is crucial to improving the organizational and professional retention, job satisfaction, and commitment of new graduates and the existing nursing workforce.

1.3   Perspectives of Diversity

Broadly defined from a social psychological perspective (Williams & O'Reilly III, 1998), "diversity refers to differences between individuals on any attribute that may lead to the perception that another person is different from self" (van Knippenberg, De Dreu, & Homan, 2004, p. 1008). In principle, diversity refers to an almost infinite number of attributes or characteristics, yet diversity researchers tend to focus exclusively on demographic attributes.

Research about differences within workgroups has been approached from either a *demographic diversity* or *relational diversity* perspective. Demographic diversity refers to the degree to which an organizational or work unit is heterogeneous with respect to certain demographic attributes or personal characteristics (Jackson et al., 1991; McCain, O'Reilly III, & Pfeffer, 1983; O'Reilly III, Caldwell, & Barnett, 1989). From this perspective, diversity reflects the distributional or composition effects of, in most cases, demographic attributes on organizational units, such as workgroups. Thus, diversity represents a collective property of organizations (Alexander, Nuchols, Bloom, & Lee, 1995; Tsui, Egan, & O'Reilly III, 1992). The demographic diversity perspective, therefore, focuses on the relationship between the collective demographic profile and outcomes such as the work unit's internal processes and performance as well as the group members' behaviour and attitudes. At the group level of analysis, organizational diversity researchers focus primarily on demographic attributes such as age, race, gender, tenure, and level of education (Williams & O'Reilly III, 1998), and less on personal attributes such as status, knowledge, and behavioural style (Jackson, Stone, & Alvarez, 1993).

In contrast, researchers examining diversity at the individual level of analysis approach diversity from a relational perspective, often termed *relational diversity*. Relational diversity refers to the degree of relative difference or dissimilarity between an individual and other workgroup members on common attributes (Riordan, 2000; Tsui et al., 1992; Tsui & Gutek, 1999). Relational diversity is similar to demographic diversity in that it measures differences in various characteristics, but dissimilar in that it measures an individual's distance from other group members, rather than the collective range of diversity (Hobman, Bordia, & Gallois, 2003). The basic premise of the relational perspective is that the similitude of an individual's attributes with those of all the other members of a particular workgroup has an impact on the individual's experience within the organizational unit or workgroup (Tsui & Gutek, 1999). The relational perspective thus recognizes that the attributes of individuals may have different effects for each individual in a particular group. The makeup of the members of the group serves as a reference point in terms of the degree to which a particular attribute may be salient for an individual (Tsui & Gutek, 1999). Predominantly objective measures have been employed to study relational diversity; however, researchers have gained increasing support for the use of subjective measures for the study of the effects of an individual's self-perceptions of

difference from others (Garcia-Prieto, Bellard, & Schneider, 2003; Riordan & Holliday Wayne, 2008; Williams, Parker, & Turner, 2007).

1.4   Research Purpose

Focusing on the individual level of analysis, the aim of this research was to investigate whether *actual* relational diversity and *perceived* relational diversity contribute to the burnout of nurses. Specifically, I explored the direct and indirect relationships between relational differences in age, education, ethnicity/race, and work values and nurses' burnout (i.e., emotional exhaustion, cynicism, depersonalization, and diminished personal accomplishment). In consideration of the context in which diversity causes individual burnout, I sought to determine whether an individual's dissimilarity from others in a workgroup is associated with his or her involvement in conflict, and if diversity is in turn associated with the experience of burnout. The types of interpersonal conflicts examined were *task*, *process*, and *relationship* conflict. Each type of conflict refers to interpersonal disagreements among workgroup members that arise from distinct sources (e.g., conflict generated from personality differences as opposed to differences about the content and goals of the work being performed) and may produce different outcomes. The study constructs are illustrated in Figure 1.1.

Figure 1.1   Overview of the Postulated Model
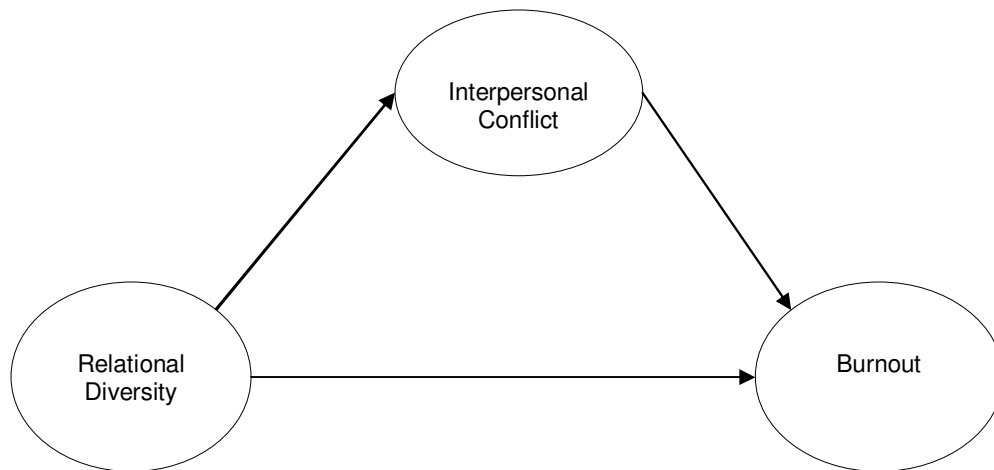
1.5   Chapter Summary

The purpose of this study was to examine whether, by producing conflict in the workplace, diversity in age, education, ethnicity/race, or work values is directly or indirectly associated with the burnout of nurses employed in acute care hospitals. Although burnout in nursing has received a great deal of attention, little attention has been paid to the effects of the relative diversity that exists among workgroup members, and whether this relative diversity contributes to much of the burnout that occurs. Very limited information is available, even in the field of organizational behaviour, about the possible conflict experienced between individuals that arises from their relative differences. In the current study, diversity of age, education, ethnicity/race, and work values was examined to determine whether such diversity gives rise to conflict among nurses, and whether that conflict, in turn, is linked to burnout. Understanding the effects of diversity in a nursing context is of both theoretical and practical importance in improving the social aspects of the work environment and lessening the frequency and consequences of burnout (e.g., lower organizational commitment, job dissatisfaction, and higher turnover).

In the following chapter, an overview of the literature pertaining to diversity, conflict, and burnout is provided in support of the conceptual models. Based on the literature review, Chapter 3 provides a concise overview of the postulated conceptual model, describing how diversity in the workplace was hypothesized to lead to burnout, and the hypotheses are identified and substantiated. Chapter 4 provides an overview of the sampling strategy, data collection procedures, operationalization of the study constructs, methods for data analysis, and ethical considerations. Details regarding the preparation of the data and the findings of the descriptive statistical procedures and confirmatory factor analyses are described in Chapter 5. Following data preparation and the confirmation of the measurement models of the study variables, the six structural models examining the direct and indirect effects were tested. In Chapter 6 the results of the hypothesis testing are presented. The results of the current study, relative to other evidence, are discussed in Chapter 7, along with their implications and further research directions.

2   LITERATURE REVIEW

An increase in the levels of job stress and interpersonal conflict experienced by nurses calls for action to understand the social aspects of their workplaces and their contributions to the quality of healthcare work environments. The aim of the research presented here was to clarify the effects of diversity within the nursing staffs of acute care hospital units and to determine whether, by producing interpersonal conflict in the workplace, such diversity is associated with nurses' burnout. In this chapter, I provide a review of the literature pertaining to the direct relationship between relational diversity and burnout, and the mediating influence of interpersonal conflict. The literature review is organized around three main themes: relational diversity, burnout, and interpersonal conflict.

The literature review regarding relational diversity focuses on the attributes identified as most dominant for, or salient to, nurses as criteria for creating social divisions among individuals in their workgroups: that is, age, education, ethnicity/race, and work values. These attributes were selected in consideration of the demographic trends of the current nursing workforce, the research evidence, and the context of nursing itself. Given the paucity of published research about diversity in nursing populations, I have included a review of literature interrelated to the constructs of interest. When no research was found to be specific to nursing populations, equivalent research conducted in other populations was considered.

The majority of literature reviewed was drawn from a comprehensive search of the research literature published in the past two decades, encompassing the fields of nursing, healthcare, psychology, and organizational behaviour (i.e., CINAHL, Medline, PubMed, Web of Science, PsycINFO, ProQuest, SocINDEX, and Business Source Premier). Searches were limited to English-language manuscripts. Key words and phrases searched included *diversity in the workplace, demography, diversity, relational diversity, cultural diversity, heterogeneity, differences, dissimilarity, work values, intergenerational relations, conflict, intragroup conflict, intraprofessional relations, interpersonal relations, bullying, horizontal violence, aggression, burnout, occupational stress,* and *mental health*. Search strategies also included manual searches of textbooks, research journals, and journal articles that had been retrieved. Reference lists contained in scientific papers, unpublished dissertations, and books were reviewed as well. The internet was used to search for additional publications by leading authors in relational diversity,

intragroup conflict, and burnout. Non-research articles (e.g., editorials, letters to the editors, and opinion articles) included in the review consisted primarily of discussion pieces and provided a theoretical or social context for the variables of interest.

2.1　　The Relational Approach to Diversity

Studies exploring relational diversity have been marked by a lack of consensus with regard to the manner in which diversity is defined, operationalized, and categorized. In this section, I provide some conceptual clarity about the use of relational diversity in the research presented here and then provide a review of the literature as it pertains to nursing workgroups.

2.1.1　　Defining Relational Diversity

The focus of diversity research, in the field of organizational behaviour, is to study the effects of human differences in organizations above and beyond simple demography. Much of the current thinking in the empirical and theoretical literature about diversity has been influenced by Pfeffer's (1983) seminal work introducing *organizational demography* (also referred to as *demographic diversity*). His research focused on the relationship between the distribution of specific demographic characteristics (e.g., age, race, ethnicity/race, gender, and education) within an organizational unit (e.g., organization, department, or workgroup) and turnover. In contrast to earlier work that focused on diversity at the group level of analysis, researchers have urged others to examine the consequences of diversity on individual outcomes (Riordan, 2000; Tsui & Gutek, 1999). To do so, a relational approach is required. The *relational diversity* perspective examines the degree of relative difference, or dissimilarity,[3] between an individual and other workgroup members on common demographic and nondemographic attributes (Clark, 2001; Hobman, Bordia, & Gallois, 2003; Tsui, Egan, & O'Reilly III, 1992). Tsui and Gutek (1999) noted that "the basic premise of the relational approach is that the relationship of an individual's own demographic attributes to that of all the other members in a particular unit will have an impact on the individual's experience in that unit" (p. 23). Thus, the relational approach recognizes that the attributes of individuals may have different effects for each individual in that

---

[3]　　The terms diversity and dissimilarity are often used interchangeably to reference relational differences between an individual and other workgroup members.

group. The makeup of the members of the group serves as a reference point in terms of the degree to which a particular attribute may be salient for an individual (Tsui & Gutek, 1999).

2.1.2 Theoretical Foundations

Relational diversity effects have been explained in terms of two complementary theories: social identity theory and similarity–attraction theory. A brief introduction of these theories is provided in this chapter and further elaborated upon in Chapter 3 with respect to the postulated conceptual model and hypotheses.

2.1.2.1 Social Identity Theory

According to social identity theory, individuals categorize themselves and others as a means of ordering the social environment and locating themselves and others within it (Ashforth, 2001). Individuals tend to perceive themselves and others as either belonging to various categories that share some common identity, or as being members of different categories (Ashforth, 2001; Northcraft, Polzer, Neale, & Kramer, 1995; Tsui, Xin, & Egan, 1995). Similarities and differences are thus employed as a basis for categorizing oneself and others into groups to provide meaningful distinctions between people or subgroups of people (Ashforth, 2001). Through a process of social comparison, individuals define a social category or group according to the most widely shared attributes of category members, specific persons who exemplify the category, or both (Ashforth, 2001); thus, individuals' social identities are derived from the process of self-categorization and attaching value to particular social categories. Relative to members of other social categories, these categories permit individuals to define themselves in terms of a social identity (Riordan, 2000). Moreover, all social categorizations implicitly involve a distinction between in-groups and out-groups (Ashforth, 2001).

2.1.2.2 Similarity–Attraction Theory

The social identity perspective explains identity based on group membership (which may or may not involve social interaction), whereas the similarity–attraction perspective explains social identity based on attitudes or personal characteristics (Riordan, 2000; Tsui et al., 1992). The initial attraction between oneself and others is based on individuals' perceptions of similarity about the characteristics and attitudes held by themselves and other individuals. Information obtained about individuals is initially based on visible demographic attributes, which

leads to inferences about similarities in values, beliefs, and attitudes (Chuang, Church, & Zikic, 2004; Tsui et al., 1995). Through social interaction, these initial perceptions of others change when detailed information about less visible or nondemographic attributes (e.g., values, beliefs, attitude, and knowledge) is obtained over time and from differing contexts (Harrison, Price, & Bell, 1998).

2.1.3   Operational Definitions of Relational Diversity

Researchers in the field of organizational behaviour operationalize relational diversity from either an objective or subjective perspective. The predominant use of objective, or *actual*, measures (e.g., the Euclidean distance measure, the use of interaction terms, and polynomial regression) to study relational diversity has been largely influenced by early demography researchers. Objective measures have been used to capture the *actual* dissimilarity that exists within a workgroup, and that consciously or unconsciously affects individuals' experiences, attitudes, and behaviour toward others (Riordan & Holliday Wayne, 2008). Other strengths of the use of objective measures are a greater degree of control in terms of what is being measured, a reduction in the bias inherently associated with individuals' ability to accurately report the degree of diversity, the opportunity to test for nonsymmetrical effects, and the ability to make casual inferences (Riordan & Holliday Wayne, 2008).

Despite the widespread use of objective measures to study diversity, the significance of a given attribute is dependent upon the outcome of interest and the population under study. For example, in some workgroups, greater age diversity is associated with work outcomes such as greater intentions to leave one's job and poorer working relationships among members of the workgroup (Chattopadhyay, 1999; Gonzalez, 2001; Riordan & Holliday Wayne, 2008; Tsui et al., 1992). At the same time, several other researchers have found that greater *actual* age diversity is not associated with coworker satisfaction, job satisfaction or organizational commitment (Clark, 2001; Liao, Joshi, & Chuang, 2004). In non-nursing populations, *actual* educational diversity has not been associated with various individual outcomes except for *actual* turnover (Jackson et al., 1991; Liao, Chuang, & Joshi, 2008). Despite some initial support for the asymmetrical effects for *actual* ethnic/racial diversity (Tsui et al., 1992), more recent researchers have not identified a negative effect on individuals' attitudes and behaviour (Clark, 2001; Keller, 2005; Riordan & Holliday Wayne, 2008). These discrepancies may be attributed to

16

methodological shortcomings, such as the use of a variety of sample populations, the sample size, and the nature of the referent groups. As well, objective measures of diversity are less congruent with the theoretical underpinnings of relational diversity. Garcia-Prieto et al. (2003) argued that assessing relational diversity objectively does not consider the dynamic nature of diversity, because individual differences within workgroups change with collegial interactions over time. Viewing diversity as nominal discrete categories, rather than continuous and interdependent, assumes that all individuals are the same within, for example, an ethnic group, and that all individuals share the same identity within a particular social category (Garcia-Prieto et al., 2003). Correspondingly, Tsui and Gutek (1999) acknowledged that approaching relational diversity from an *actual* perspective is problematic when it assumes that individuals attach the same value to specific attributes.

Given the theoretical and methodological limitations of objective measures of relational diversity, other researchers have introduced subjective measures to assess the effects of an individual's perceptions of his or her differences from others (Clark, 2001; Hobman et al., 2003; Liao et al., 2008; Riordan & Holliday Wayne, 2008; Williams, Parker, & Turner, 2007). The use of subjective, or *perceived*, measures of relational diversity "is based on the theoretical assumption that individuals assign their own psychological meaning to the differences in demographic characteristics between themselves and others" (Riordan & Holliday Wayne, 2008, p. 571). Individuals' perceptions of being different often differ from objective reality, and objective differences do not necessarily result in perceptions of dissimilarity (Van der Vegt & Van de Vliert, 2005). Thus, consideration of the perceptual approach to measuring diversity takes into account individuals' subjective experience of "being different," recognizes the potential salience of certain demographic and nondemographic attributes to individuals, and considers whether individuals differ in their perceptions of, and reaction to, objective reality (Clark, 2001; Garcia-Prieto et al., 2003; Riordan & Holliday Wayne, 2008). This approach to operationalizing diversity draws on the importance of individuals self-determining which category they subjectively feel they belong to, rather than the researcher determining the objective categories into which individuals fall (Garcia-Prieto et al., 2003). Furthermore, a perceptual approach recognizes the social construction of diversity, in that an attribute defined as

very important in one context may be defined as less important in another (Garcia-Prieto et al., 2003).

Despite the growing interest in subjective interpretations of individual dissimilarity, research using *perceived* measures is limited. In the field of organizational behaviour, *perceived* diversity is negatively associated with helping behaviour, interpersonal conflict, workgroup involvement, turnover intentions, job attitude, work withdrawal, organizational commitment, and collegial interactions among members of workgroups (Hobman et al., 2003; Hobman, Bordia, & Gallois, 2004; Liao et al., 2008; Riordan, 1997; Riordan & Holliday Wayne, 2008; Van der Vegt & Van de Vliert, 2005; Williams et al., 2007). Another key finding from this body of research is that not all diversity attributes are equivalent in terms of their outcomes. For example, Hobman et al. (2003) and Liao et al. (2008) found that *perceived* similarity in values among colleagues is significantly associated with less conflict, greater workgroup involvement, and a positive job attitude, whereas *perceived* differences in visible (i.e., age, gender, and ethnicity/race) and information diversity (i.e., education) were not. Kirchmeyer (1995) found no support for a relationship between *perceived* individual diversity and commitment and turnover intentions. Other studies, however, have indicated that *perceived* diversity in age, gender, and ethnicity/race is significantly predictive of outcomes such as workgroup identification, organizational commitment, and turnover (Hobman et al., 2004; Riordan & Holliday Wayne, 2008). At this time, measures of *perceived* diversity may explain some of the consequences of individual dissimilarity; however, no conclusive results have been achieved.

Since most studies do not concurrently test *actual* and *perceived* relational diversity, a limitation of the aforementioned research is the lack of comparison of the amount of variance in the outcome variables explained by measures of *actual* and *perceived* diversity. For example, using a combination of both *actual* and *perceived* measures to study various attributes, Jehn et al. (1999) and Liao et al. (2008) reported that *perceived* values diversity accounts for a significant portion of the variance in task, relationship, and process conflict, in comparison with *actual* measures of age, gender, and educational diversity. In my review of the literature, only two studies were found that used both an *actual* and *perceived* approach to study the attributes of interest (Clark, 2001; Riordan & Holliday Wayne, 2008). The goals of these researchers were to determine whether subjective measures account for a greater percentage of the variance than the

more objective measures of relational diversity, and to explore the association between *perceived* and *actual* diversity. In a sample of employees working in the public sector, Clark (2001) tested the hypothesis that *perceived* diversity in age accounts for the variance in various job-related attitudinal outcomes beyond that explained by *actual* diversity. He revealed that *actual* age diversity did not predict job satisfaction, turnover intentions, affective commitment, or satisfaction with colleagues; *perceived* age diversity, however, was a significant predictor of satisfaction with colleagues. Similarly, Riordan and Wayne (2008) found that *perceived* diversity in age and ethnicity/race accounted for a significant percentage of the variance in individuals' lack of organizational commitment and limited identification with their workgroup, whereas *actual* age and ethnic/racial diversity did not. Because research exploring subjective measures of diversity is in its infancy, no conclusive statements can be made that *perceived* diversity is more strongly predictive than *actual* diversity.

2.1.4   An Overview of the Diversity Attributes Studied in Previous Research

What is clear from the empirical and theoretical literature is that diversity is not a unitary construct. A major difficulty in empirically assessing the impact of diversity on individual and workgroup behaviour is that the number of attributes being studied has broadened significantly during the past 25 years. Comprehensive reviews of discussions about the types or classifications of diversity attributes have been published elsewhere (Harrison et al., 1998; McGrath, Berdahl, & Arrow, 1995; Pelled, 1996a). In general, the diversity attributes researched to date range from discrete demographic categories (e.g., age, gender, race, job tenure, work status, and education) to more broad and varied nondemographic attributes (e.g., task-related capabilities; values, beliefs, and attitudes; personality and cognitive/behavioural styles; and functional background) (Clark, 2001; Garcia-Prieto et al., 2003; Hobman et al., 2004; McGrath et al., 1995; Pfeffer, 1983; Sacco & Schmitt, 2005; Williams & O'Reilly III, 1998). Most diversity researchers focus exclusively on a narrow range of demographic characteristics that are easily observable (e.g., age, gender, and ethnicity/race) without considering other attributes that are not readily apparent (e.g., education) or nondemographic (e.g., values and personality) yet may be most salient to workgroup members (Tsui & Gutek, 1999). In keeping with the theory underpinning relational diversity, researchers have moved toward greater recognition of the importance of attributes that are not readily apparent, especially when investigating *perceived*

dissimilarity. Although demographic attributes may initially be used as part of the categorization and attraction process, those that are less readily apparent are important for shaping social identities within workgroups. Examining a full range of attributes, beyond demographic characteristics, is necessary to capture a wider range of human differences and to consider the complex configuration of such differences (Clark, Ostroff, & Atwater, 2002).

Although researchers have sought to provide conceptual clarification regarding the types of diversity attributes, the lack of agreement in defining such attributes, coupled with the incongruence between conceptual and operational definitions of these variables, have added to the complexity of understanding the impacts of diversity. Using a discrete categorical approach, researchers treat each diversity variable as a distinct theoretical concept, based on the argument that different types of diversity may produce different outcomes. Another approach taken in studying diversity has been to treat diversity broadly by grouping diversity attributes (e.g., social category diversity includes age, gender and race attributes; informational diversity includes education, work experience/functional background, and expertise) (Jehn et al., 1999; Pelled, 1996a; Webber & Donahue, 2001) or creating a total composite score of diversity (Chatman, Polzer, Barsade, & Neale, 1998; Chatman & Spataro, 2005). Arguments exist on both sides in support of these approaches to operationalizing diversity. On the one hand, using a broad diversity variable may allow hypotheses or propositions to have greater explanatory power. Conversely, grouping the different types of diversity together may not only increase the error and thus deflate the correlations, but may also cause researchers to overlook important distinctions among them and make inaccurate predictions (Pelled, 1996a; Riordan & Holliday Wayne, 2008).

2.1.5   Empirical Literature Concerning Relational Diversity in Nursing Workgroups

Although relational diversity has been researched extensively in the field of organizational behaviour, *actual* relational diversity has been the subject of one study sampling from nursing populations (Gates, 2005), while two studies have explored *perceived* diversity in nursing workgroups (Gates, 2005; Hobman et al., 2004). As part of a larger national study in the United States, Gates (2005) obtained a population sample of 1508 nurses from 248 acute care hospital units. Data were collected three times during a six-month period to examine the direct effect of diversity on nurses' job satisfaction and intention to stay. He reported that greater *actual* educational diversity predicted nurses' intentions to leave their jobs whereas *actual* age and

ethnic/racial diversity did not. He also concluded that greater *actual* age and educational diversity were *not* predictive of nurses' dissatisfaction with their jobs. Counter to his hypothesis, Gates (2005) found that greater *actual* ethnic/racial diversity predicted greater job satisfaction among nurses. In other words, *actual* ethnic/racial diversity present in nursing workgroups enhanced job satisfaction. Subsequent analyses revealed that *actual* ethnic/racial diversity was predictive of greater job satisfaction in older nurses (over 48 years of age) but not younger nurses (under 34 years of age) (Gates, 2005). Given the absence of other studies exploring *actual* diversity in nursing populations, this study indicates that educational diversity may be important in predicting turnover intentions and that ethnic/racial diversity may be associated with greater job satisfaction.

In nursing workgroups, two studies have examined the *perceived* approach to relational diversity. Hobman et al.'s (2004) study of 119 nurses working in acute care involved two surveys, with 4 weeks between administration, to examine the direct effect of *perceived* diversity on nurses' involvement with their workgroup. The first survey contained items regarding the dependent and independent variables, whereas the second survey measured workgroup involvement in conjunction with other variables that were part of a larger study. At different times, she found that nurses' involvement with their workgroup was associated with *perceived* visible diversity (i.e., age, gender, and ethnicity/race) and *perceived* informational diversity (i.e., professional background, work experience, and education) but not *perceived* values diversity (i.e., work values and motivations). At Time 1 of data collection, regression analyses confirmed that nurses who *perceived* themselves as different in visible and informational attributes were less involved in workgroup discussions and decision making, and did not feel respected, included, or heard (Hobman et al., 2004). Only *perceived* visible dissimilarity was a predictor of individuals' workgroup involvement at Time 2. No significant relationship was found between *perceived* value diversity and workgroup involvement despite a statistically significant bivariate correlation (Hobman et al., 2004). Conversely, another study (Gates, 2005) showed that *perceived* differences in work values, in comparison with other demographic diversity attributes, are predictive of both job satisfaction and intention to stay. Specifically, Gates (2005) found that *perceived* values diversity negatively predicted both job satisfaction and the intention to stay in both older nurses (over 48 years of age) and younger

21

nurses (under 34 years of age). The differences between these two studies in the significance of *perceived* values diversity may be attributed to studying different outcomes, in addition to methodological issues such as workforce restructuring prior to commencement of the study, and different measures used to assess *perceived* values diversity. Although not studying relational diversity *per se*, in a small sample (N = 56) of nurses in Norway, Verplanken (2004) found that values congruence between individuals and their unit was positively associated with job satisfaction and to a lesser extent "ward" attitude. Specifically, greater values congruence with regard to human relations (e.g., empowerment of employees to act, participation and open discussion, and trust and openness) was predictive of a better attitude toward the nursing unit and job satisfaction. Despite the examination of various individual outcomes and the lack of replication studies, collectively these studies suggest that perceptions of differences for observable attributes such as age and ethnicity/race may be associated with negative interactions among members of a workgroup and that *perceived* differences in work values may influence individuals' attitudes toward work.

External from the diversity research in the field of organizational behaviour, the findings from a qualitative study of nursing teams in acute care hospitals established a connection between racial diversity and team difficulties with communication and conflict resolution (Dreachslin, Hunt, & Sprainer, 2000). Communication processes characterized by conflict and misunderstandings were attributed specifically to racial differences. Members of nursing care teams (i.e., RNs, patient-care technicians, and support associates such as housekeeping and dietary personnel) were said to "see the team's interactions from different perspectives or vantage points that are strongly influenced by each team member's racial identity and how he or she experiences that racial identity" (Dreachslin et al., 2000, p. 1408). The differing perspectives provided a framework within which team conflict and miscommunication were interpreted and experienced. Dreachslin et al.'s (2000) study highlighted the importance of approaching diversity from a relational perspective, in that two individuals with different demographic profiles (e.g., race) in the same workgroup may have different experiences within and perceptions of the group.

The current debate about differences in values among nurses is based on generational cohort theory. The research regarding value differences has focused on identifying what values

the various generational cohorts hold (McNeese-Smith & Crook, 2003) and whether work-related attitudes and behaviour vary among the different generations of nurses (Apostolidis & Polifroni, 2006; Blythe et al., 2008; Santos et al., 2003; Santos & Cox, 2000; Santos & Cox, 2002; Shader, Broome, Broome, West, & Nash, 2001; Stuenkel, Cohen, & de la Cuesta, 2005; Widger et al., 2007). For example, McNeese-Smith and Crook (2003) sought to determine value differences among nurses depending on their age, educational background, and ethnicity/race. They found some statistically significant differences in values among educational levels and ethnicities. Differences in age were positively associated with aesthetics, which means that older nurses scored higher on this value compared with younger nurses. The older nurses, in comparison with the younger nurses, scored lower on three values: economic returns, prestige, and variety. McNeese-Smith and Crook (2003) went on to report that differences in values between the generational cohorts were statistically significant for 2 of the 15 values measured (i.e., variety and economic returns). Investigating whether work-related attitudes and behaviour vary among the generational cohorts, several researchers have identified statistically significant differences in job satisfaction, burnout, job stress, organizational behaviour and intention to leave (Blythe et al., 2008; Lavoie-Tremblay et al., 2008; Santos et al., 2003; Widger et al., 2007). Others such as Hu et al. (2004), however, found no statistically significant differences in the communication styles and job attitudes of the generational cohorts. The mixed results of these studies addressing generational differences among nurses are attributable in part to methodological issues with sampling, measurement, and study design. Studies conducted in the nursing field often suffer from small sample sizes for each generational or age cohort. Moreover, the existing measures used to assess work values are insufficient in that they do not reflect the work-related values or work ethic for each generation. Often researchers conflate generational effects and age effects with respect to various work-related attitudes and behaviour. Given that these studies are of a cross-sectional design, whether these value differences represent a generational cohort effect, age effect, or time effect has yet to be determined.

2.1.6   Summary

The majority of the relational diversity research assesses *actual* differences; however, the theory underpinning relational diversity within workgroups (e.g., social identity theory and similarity–attraction theory) refers to individuals' perceptions of similarity and dissimilarity as

the major cause of differences in work-related outcomes (Riordan, 2000). Including both objective and subjective measures of relational diversity is important to tap into different aspects of the construct (Riordan, 1997) by capturing the degree of relative diversity as well as the individual's perception of being different. Research inclusive of both approaches also provides a more comprehensive picture of the complexities of diversity on the attitudes and behaviour of individuals (Riordan, 2000). At the same time, the attributes selected for examination are often unjustified by researchers in terms of their importance to the population being studied and the social context of the referent group. In most instances, more observable attributes are selected without consideration of the context of the workgroups.

Despite the examination of various individual outcomes, the absence of replication studies, and the inconsistencies in examining attributes as discrete categories, some emerging findings can be related to the detrimental consequences of diversity in the workplace. Greater *perceived* age diversity may be associated with negative interactions among members of nursing workgroups, and *perceived* work-values diversity may influence nurses' attitude toward work. There also is some indication that *actual* and *perceived* ethnic/racial diversity may be associated with greater job dissatisfaction and poorer interpersonal relationships. Finally, *actual* educational diversity may be important in predicting turnover intentions among nurses. More sophisticated methods of data analysis, beyond multiple linear regression, may be of assistance in the determination of the relative contributions of *actual* and *perceived* relational diversity on individual outcomes within nursing workgroups (Riordan & Holliday Wayne, 2008). The following section provides an overview of burnout (i.e., definition, antecedents, consequences, and prevalence) and a review of the literature with regard to burnout as a potential outcome of the diversification of the nursing workforce. The final section illuminates the process by which diversity may lead to burnout, namely interpersonal conflict.

2.2   Burnout as an Outcome of Relational Diversity

In organizational behaviour, researchers examining relational diversity at the individual level of analysis typically examine the relationships between diversity and select outcomes such as absenteeism, commitment, attachment, work performance, satisfaction, and turnover. The outcome variable of interest in the current study was burnout.

2.2.1   Defining Burnout

Burnout is conceptualized as a psychological syndrome attributed to chronic, everyday interpersonal stressors and emotional strain experienced on the job. It is one type of job stress arising predominantly from emotionally demanding social interactions between human service providers and their recipients (Cordes & Dougherty, 1993; Duquette, Kerouac, Sandhu, & Beaudet, 1994; Maslach, Schaufeli, & Leiter, 2001). Maslach (1982) conceptualized burnout as a social phenomenon, rather than an individual work-related and situation-specific phenomenon. Four aspects[4] of burnout have been identified: emotional exhaustion, cynicism, depersonalization, and diminished personal accomplishment (Maslach et al., 2001). *Emotional exhaustion* refers to feelings of being emotionally overextended and having one's emotional resources depleted. Within the human services, a negative, callous, or distant attitude to other people exemplifies *depersonalization*. Outside of the human services, when individuals feel discouraged and exhausted, they often mentally distance themselves by developing an indifferent attitude toward their work or employer instead of other people, which is referred to as *cynicism*. Thus, the target of the mental distancing differs. For human service providers, the targets are the recipients of their services; for employees who work with objects or information, the target is the work itself (e.g., the organization at large, the work environment, and people at the job such as other employees) (Maslach et al., 2001). The fourth aspect of burnout, feelings of diminished *personal accomplishment*, refers to a tendency to evaluate oneself negatively, particularly with regard to feelings of competence and achievement in one's work with clients (also referred to as *personal inefficacy*). Accordingly, individuals may feel unhappy about their accomplishments at work and dissatisfied about themselves (Maslach, Jackson, & Leiter, 1996; Salanova et al., 2005). The four aspects of burnout range from low to high degrees of experienced feelings.

---

[4]   Traditionally, burnout has been conceptualized as having three dimensions. Based on the results of confirmatory factor analyses, recent disagreements have emerged in the literature about burnout and whether it has a three- or four-factor structure (Maslach et al., 2001; Salanova et al., 2005). The concepts of particular concern in such debates are whether cynicism and depersonalization represent two separate and distinct forms of mental distancing. Within the human services, depersonalization is seen as an attempt to put distance between oneself and one's clients; outside the human services, when people are exhausted and discouraged, they distance themselves mentally from their work by developing an indifferent or cynical attitude toward their employer or the system (Salanova et al., 2005). For conceptual clarity in understanding the impact of diversity on burnout, I refer to burnout as having four dimensions. It is reasonable to assume that nurses experience one and not the other; that is, they may not depersonalize their patients but may become cynical about the healthcare system in general, or their employer in particular, which may contribute to burnout.

Within this study, for ease of communication, the umbrella term "burnout" is used when discussing the phenomenon more generally; however, when discussing the hypotheses and results of the current study, and those found in the literature, the particular aspect of burnout is specified.

2.2.2   Consequences of Burnout

As a form of job stress, burnout has been linked to various types of negative individual and workplace outcomes (Maslach et al., 2001), including both *mental stress-related health problems*, outcomes such as feelings of poor self-esteem, depression, irritability, helplessness, and anxiety, as well as *physical health problems,* such as fatigue, insomnia, headaches, and gastrointestinal disturbances (Maslach et al., 2001). The deleterious effects of burnout may also include changes in the nature or frequency of interactions with clients, colleagues, and family members. At the work level, burnout has been linked to *attitudinal changes,* such as reduced organizational commitment and job dissatisfaction and *behavioural consequences,* such as poor job performance, absenteeism, and professional turnover (Cordes & Dougherty, 1993). Burnout is a costly concern – not only does the individual's health and well-being suffer, but the people with whom individuals experiencing burnout come in contact, as well as the organization and the immediate workgroup, bear the cost of this work-related syndrome (Cordes & Dougherty, 1993; Halbesleben & Buckley, 2004; Maslach et al., 2001). Additionally, burnout can have detrimental effects on the quality of care received by clients (Maslach et al., 1996).

2.2.3   Antecedents of Burnout

As previously mentioned, burnout is specific to the work context. Thus, a consistent focus of burnout research during the past 25 years has been the impact of situational sources of work-related, interpersonal stress. The three main sources are: (a) *job characteristics* (e.g., role conflict and role ambiguity, lack of job resources, role overload, and job demands), (b) *occupational characteristics* (e.g., care-giving occupations and interpersonal relations with clients), and (c) *personal characteristics* (e.g., demographics, social support, personal expectations, personality, job expectations, and career progress) (Cordes & Dougherty, 1993). Based on these conceptions of burnout, emotional exhaustion, depersonalization, and cynicism tend to occur as a result of work overload and social conflict, whereas a sense of personal inefficacy arises from a lack of resources necessary for job completion (Cordes & Dougherty,

1993; Maslach et al., 2001). Although burnout is conceptualized as a function of the situation, rather than the individual, limited emphasis has been placed on the influence of organizational characteristics (Maslach, 2003).

Although a feature of the work context is the provider–client relationship, it is also embedded in layers of the organizational context, for example, the quality of provider interactions with their colleagues at work. More recent work about job engagement, the antithesis of burnout, recognizes the social context of the workplace and other organizational characteristics as important predictors of burnout (Maslach & Leiter, 2008). From this perspective, recognition is given to the implicit influence of organizational processes and structures that shape the work environment, and the social relationships (emotional and cognitive) that people develop in their places of work. Coupled with the stressors associated with the shortage of nurses, organizational changes such as workload and restructuring have greatly influenced the environments in which nurses work, particularly a reduction in the quality of social interaction at work (i.e., the social climate). These less-convivial work environments can create a problem for human service providers; negative collegial interactions are thought to be a source of stress experienced by and affecting human service professionals. Thus, the range of situational factors as antecedents of burnout has been expanded to include organizational characteristics in addition to work and occupational characteristics (Maslach et al., 2001).

This more recent theoretical framework of the burnout–engagement continuum incorporates both individual and situational factors occurring simultaneously. This perspective views the person and the environment as interdependent entities in an attempt to explain behaviour by examining the interaction between the two entities (Maslach et al., 2001). Based on research about the organizational factors related to burnout, Maslach et al. proposed a comprehensive model of burnout focusing "on the degree of match, or mismatch, between the person and six domains of his or her job environment" (p. 413): workload, control, reward, community, fairness, and values (Maslach & Leiter, 2008). The greater the chronic mismatch between people and their work settings, in terms of some or all of these six domains, the greater the likelihood of burnout, particularly emotional exhaustion and cynicism (Maslach & Leiter, 2008; Maslach et al., 2001). Conversely, greater congruency represents a high degree of employee engagement. "Despite the close interrelatedness of these six areas, each area brings a

distinct perspective to the interactions of people with their work settings" (Maslach et al., 2001, p. 414). This approach is fairly new; however, research about the six areas of the work environment can function together in defining a framework encompassing the major organizational antecedents of burnout (Maslach et al., 2001). Of these six, the two areas relevant to the current research are community and values.

2.2.4   Prevalence of Burnout in Canadian Nurses

Several national studies have indicated that the prevalence of high levels of perceived stress and burnout in the Canadian labour force has increased in the past decade (Duxbury & Higgins, 2003; Jobquality.ca, 2009a; Lowe, 2006). Healthcare providers, including nurses, are at high risk for burnout and work stress. Healthcare workers in British Columbia perceive themselves to have higher levels of work stress than workers in other occupations (Lowe, 2006). More than one third (39%) of healthcare workers report that most days at work are "quite a bit" or "extremely" stressful (Lowe, 2006). The prevalence of burnout among Canadian nurses is typically reported within the norms for medical personnel, as established by Maslach et al. (1996). Although burnout among nurses is within the established norms it is nonetheless striking that in a recent study of registered nurses working in acute care hospitals in Ontario, almost three quarters (69%) reported a moderate to high degree of emotional exhaustion and one half (49%) reported a moderate to high degree of diminished personal accomplishment. Less significantly, 31% of nurses reported a high to moderate degree of depersonalization (Widger et al., 2007). Furthermore, among nurses, the prevalence of burnout is notably higher among 20 to 39 year olds in comparison with their older counterparts. Specifically, those under 40 years of age reported greater emotional exhaustion and depersonalization, whereas nurses 50 years or older reported higher levels of diminished personal accomplishment[5] (Blythe et al., 2008). Despite the differences among various age groups, all nurses experience burnout to some degree.

---

[5]   With the exception of personal accomplishment, these findings are consistent with other researchers' reports that burnout is most common in younger individuals who typically have less work experience, in unmarried individuals, and in individuals with higher levels of education (Cordes & Dougherty, 1993; Duquette et al., 1994; Maslach et al., 2001).

2.2.5   Empirical Literature Concerning Burnout and the Relational Diversity within Nursing Workgroups

No previous published research has investigated the relationship between *actual* relational diversity and burnout in nursing workgroups; however, in the field of organizational behaviour, two studies have examined this relationship. In a study of 135 university faculty members, Siegall and McDonald (2004) found a strong association between *perceived* work-related values and burnout. Specifically, *perceived* value similarity (i.e., holding work-related values that were similar or congruent with the organization's values) was positively correlated with personal accomplishment and negatively correlated with emotional exhaustion and depersonalization. In other words, individuals experience more burnout when they *perceive* their values to be dissimilar from the organization's. Another study, conducted by Wesolowski and Mossholder (1997), found that greater *actual* diversity in race within the superior–subordinate dyad was positively associated with subordinates' burnout; however, *actual* age diversity was not associated with burnout. Given the limited availability of research examining the linkages between diversity and burnout, no firm conclusions can be drawn as to which attributes are of potential significance to nursing workgroups. Available for comparison are numerous studies that have separately examined *actual* and *perceived* relational diversity on individual level outcomes such as absenteeism, work involvement, organizational commitment, job satisfaction, and turnover (Riordan, 2000; Tsui & Gutek, 1999). These attitudinal and behavioural outcomes are often cited as some of the consequences of burnout (Cordes & Dougherty, 1993; Maslach et al., 2001). In the following sections, I discuss the research related to the effects of *actual* and *perceived* diversity on outcomes interrelated with burnout.

2.2.6   Empirical Literature about the Relationships between Relational Diversity and Outcomes Interrelated with Burnout

As seen in Appendix A (see Tables A1 and A2), the literature related to *actual* and *perceived* diversity was reviewed regarding the attributes of interest for the current study: age, education, ethnic/racial, and work values. Accordingly, the following review is organized by each diversity attribute of interest, speaking first about *actual* diversity and next about *perceived* diversity. The outcomes discussed in this literature review are interrelated with the burnout construct; it stands to reason that if diversity is associated with some of these work-related outcomes, then they may also be linked with burnout.

Before presenting this body of research, it is worth voicing a word of caution about some methodological issues. Much of what is known is based on samples drawn from a variety of populations (e.g., librarians, manufacturers, university students completing course projects, coaches, banks, restaurants, and salons). Many of the studies are exploratory in nature and suffer from having small sample sizes. Although a few are longitudinal, for the most part the studies are cross-sectional. The referent group is of great importance in influencing the results obtained in relational diversity studies; the referent groups in these studies, however, vary from dyads to entire workgroups (e.g., supervisor–employee relationships, random samples of members of a workgroup, and entire workgroups) and differ in size, level of interaction, and permanence of the workgroup (Riordan, 2000). A limited number of researchers have sought to replicate the findings of earlier studies. Furthermore, the generalizability of some of the findings may be limited because of the use of students as research subjects in artificially constructed workgroup situations and having been set in various countries. Multiple linear regression analysis was primarily used for data analysis in these studies, which may be insufficient to explore adequately the complexities of the diversity attributes that co-occur in the workplace.

2.2.6.1   *Actual* and *Perceived* Age Diversity

Several researchers have examined *actual* age diversity in workgroups and have reported mixed findings, depending on the outcome of interest. For example, several researchers did not find a significant relationship between *actual* age diversity and work withdrawal behaviour, overall job attitude (i.e., job satisfaction and affective commitment) (Liao et al., 2008), job satisfaction (Clark, 2001), or organizational commitment (Clark, 2001; Gonzalez, 2001; Liao et al., 2004; Riordan & Holliday Wayne, 2008). Both Tsui et al. (1992) and Riordan et al. (2008) reported that the more dissimilar an individual was in age to other members of the workgroup, the greater was the individual's intentions to leave the organization under study. Counter to this finding, others have reported that age differences are not predictive of *actual* job turnover (Jackson et al., 1991) or greater intentions to leave (Clark, 2001; Gonzalez, 2001).

Although *actual* age diversity does not seem to have strong relationships with individual work-related outcomes (e.g., job satisfaction) in some instances it does influence individuals' attitudes and behaviour toward others within the workgroup. For example, Chattopadhyay (1999) reported that *actual* age diversity was associated with peer relationships

30

within a workgroup. Specifically, the peer relations of older employees were lower when age diversity was found to be greater, and the peer relations of younger employees were better when age diversity was greater. Younger employees were more likely to report better peer relations when there was greater age diversity in the group; however, older employees reported poorer peer relations when they had more dissimilarity with their peers (Chattopadhyay, 1999). Riordon and Wayne (2008) concluded that *actual* age diversity is predictive of workgroup identification in that the more diversity there is, the lower the identification and attraction among members of a the workgroup. Counter to their hypothesis, Liao et al. (2004) found that when individuals were dissimilar in age to other members of their workgroups they perceived greater support from their coworkers. They did not explore whether differential effects existed between younger and older employees. Riordan and Holliday Wayne (2008) did not find a significant relationship between *actual* age diversity and the amount of open communication within a workgroup. Using different measurement approaches for *actual* diversity, Clark (2001) and Liao et al. (2004) both reported that difference in age relative to other workgroup members did not predict individuals' satisfaction with their coworkers. Finally, Liao et al. (2008) found that *actual* age diversity affected the helping behaviour of members of a workgroup. Specifically, the more age diversity that existed within a workgroup, the less willing the individuals were to engage in cooperative helping behaviour toward other members of the workgroup (Liao et al., 2008). This finding was not supported by Van der Vegt and Van de Vliert (2005), who did not find a significant relationship between *actual* age diversity and the helping behaviour of business students who were completing an assigned project.

Much of the literature examining the consequences of *perceived* age diversity focuses on a range of outcomes specific to individuals' attitudes about their work (e.g., job satisfaction) and the nature of their relationships with members of their workgroup. For example, greater *perceived* age diversity predicted less identification with the workgroup, lower commitment to the organization (Riordan & Holliday Wayne, 2008), and negative attitudes toward one's job (i.e., job satisfaction and affective commitment) (Liao et al., 2008). Counter to this finding, Clark (2001) reported that *perceived* differences in age among members of probation departments did not predict job satisfaction or affective commitment. Clark (2001) concluded that individuals who perceived themselves to be *similar* in age to others were less satisfied with their coworkers;

however, Cunningham (2007) found a negative association between *perceived* age diversity and coworker satisfaction among track and field coaches. Moreover, *perceived* age diversity was not a statistically significant predictor of work withdrawal, uncooperative helping behaviour (Liao et al., 2008), perspective taking[6] (Williams et al., 2007), or greater actual or intended job turnover (Clark, 2001; Cunningham, 2007; Liao et al., 2008).

In summary, the research that has examined *actual* and *perceived* age diversity has produced mixed results with regard to individuals' commitment to their organizations and satisfaction with their jobs and coworkers. The most prominent pattern is that *perceived* age diversity does not seem influence individuals' relationship and interaction with others in their workgroups; however, *actual* age diversity has been show to have some detrimental effects. For example, greater *actual* age diversity in some workgroups has been associated with greater intentions to leave one's job, diminished peer relationships, less attraction to other members of the workgroup, and less cooperative helping behaviour. One study indicated that *actual* age diversity may have differential effects for younger and older individuals in such a way that *actual* age diversity may positively influence individuals' behaviour (Chattopadhyay, 1999).

2.2.6.2   *Actual* and *Perceived* Educational Diversity

Few researchers have examined the salience of educational diversity on individual outcomes. Four studies were located that examined *actual* educational diversity. In some instances, individuals were found to be more likely to leave their jobs (actual turnover) if they were dissimilar from their colleagues in terms of their educational level (Jackson et al., 1991; Liao et al., 2008); however, others have reported that *actual* educational diversity was not found to be predictive of greater intentions to leave (Riordan & Holliday Wayne, 2008; Tsui et al., 1992). A few others have found no statistically significant relationships between *actual* educational diversity and individual outcomes, such as weaker organizational commitment (Riordan & Holliday Wayne, 2008; Tsui et al., 1992), greater absenteeism (Tsui et al., 1992), more work withdrawal, poorer overall job attitudes, less helping behaviour (Liao et al., 2008), lower workgroup identification, and less open communication within the workgroup (Riordan & Holliday Wayne, 2008).

---

[6]   The ability to empathize and make positive attributions about others (Williams et al., 2007).

In the context of the aims of the current study, I identified two previous studies that explored *perceived* educational diversity. Riordan and Holliday Wayne (2008) found that *perceived* educational diversity was a weak predictor of less identification with the workgroup and diminished communication. *Perceived* educational diversity, which was grouped with education and lifestyle attributes, was not related to organizational commitment or job turnover (Kirchmeyer, 1995). Given the lack of available studies for comparison and the limitations of the research findings, it is difficult to draw definitive conclusions about the influence of *actual* and *perceived* educational diversity.

2.2.6.3   *Actual* and *Perceived* Ethnic/Racial Diversity

Differences with regard to ethnicity/race are one of the most common diversity attributes studied in the field of organizational behaviour. Research about relational ethnicity/race has produced mixed and often asymmetrical results. Greater *actual* diversity in ethnicity/race has been associated with weaker organizational commitment (Liao et al., 2004; Tsui et al., 1992), greater intentions to leave an organization, and a higher frequency of absenteeism (Tsui et al., 1992). Riordan and Shore (1997) reported that the greater the *actual* ethnic/racial diversity between individuals and others in a workgroup, the more negative were individuals' attitudes toward the workgroup, weak commitment to the workgroup and lower productivity. Liao et al. (2004), Tsui et al. (1992), and Riordan and Shore (1997) all provided preliminary support for the asymmetrical effects of *actual* ethnicity/race diversity in that the effects may be greater for individuals who do not represent the majority in a given workgroup. Conversely, more recent researchers have reported that *actual* ethnic/racial diversity is not associated with less satisfaction with or support from coworkers (Clark, 2001; Liao et al., 2004), job dissatisfaction (Clark, 2001; Cunningham & Sagas, 2004), weak organizational commitment (Clark, 2001; Gonzalez, 2001; Keller, 2005; Riordan & Holliday Wayne, 2008), greater intentions to leave a job (Clark, 2001; Cunningham & Sagas, 2004; Gonzalez, 2001; Keller, 2005; Riordan & Holliday Wayne, 2008), lower workgroup identification, less open communication within the workgroup (Riordan & Holliday Wayne, 2008), or psychological empowerment (Keller, 2005).

Several researchers in the field of organizational behaviour have examined *perceived* individual dissimilarity in ethnicity/race. Two studies identified that *perceived* ethnicity/race was

not statistically significant in predicting job satisfaction, turnout intentions, or affective commitment (Clark, 2001; Cunningham, 2007). Riordan and Holliday Wayne (2008), however, found the opposite in their study, in that greater *perceived* ethnicity/race predicted weaker identification with the workgroup, diminished communication, lower commitment to the organization, and greater intentions to leave. Two studies found that *perceived* ethnic/racial diversity was negatively related to individuals' satisfaction with their coworkers (Clark, 2001; Cunningham, 2007).

As with the other attributes previously discussed, the research concerned with *actual* and *perceived* ethnic/racial diversity has produced mixed results. When *actual* differences in ethnicity/race are significant, there is some preliminary support for there being asymmetrical effects of ethnicity/race in that some individuals are affected differently by diversity. The asymmetrical effects of *perceived* ethnic/racial diversity have not been explored.

2.2.6.4 *Actual* and *Perceived* Work Values Diversity

Few researchers in the field of organizational behaviour have examined nondemographic attributes in the study of *actual* diversity. One challenge with studying nondemographic attributes such as work values is the challenge of creating diversity scores. Available for comparison are two studies that examined work values by assessing the *actual* value congruence between individuals and members of their workgroup (Gonzalez, 2001) and between supervisor–employee dyads (Gelfand, Kuhn, & Radhakrishman, 1996). Ineffective communication between employees and their supervisor is influenced by *actual* differences in work values (Gelfand et al., 1996), however, research by Gonzalez (2001) failed to support an association between *actual* values diversity and organizational commitment or job turnover intentions.

In studies of non-nursing samples, there is some support for an association between *perceived* differences in work values and employees' attitudes (i.e., job dissatisfaction, greater intentions to leave, and lower commitment to the organization or workgroup) (Clark, 2001; Cunningham, 2007; Cunningham & Sagas, 2004; Gonzalez, 2001; Jehn et al., 1999; Liao et al., 2008). When individuals' perceive that their values differ from those of the organization or workgroup, they have stronger intentions to quit, are less committed, and are more dissatisfied with their jobs. Although not studying burnout *per se*, Liao et al. (2008) reported that greater

perceived deep-level diversity (which includes differences attributed to work values) was predictive of individuals' work withdrawal behaviour, helping behaviour, and greater likelihood of leaving the workgroup. At the same time, when employees have work values that differ from those of their colleagues, they are also less likely to be involved in their workgroup (Hobman et al., 2003), unable to see the world from another's viewpoint (Williams et al., 2007), and dissatisfied with their colleagues (Clark, 2001; Cunningham, 2007). Perceptions of dissimilarity in individuals' personal attributes (which include work values) were also found to predict job dissatisfaction, greater job turnover intentions, and weaker affective commitment to the organization (Clark, 2001).

In summary, because there are very few studies that have examined the effects of *actual* work-values diversity on individuals, it is difficult to draw conclusions. The body of evidence regarding *perceived* differences in work values, however, is suggestive of individuals' holding negative attitudes toward their work and members of their workgroup. Individuals who differ from others within the workgroup are more likely to withdraw, are less involved and accepting of others, and are more dissatisfied with their colleagues.

2.2.7   Summary

The research exploring the relationship between diversity and burnout is sparse. A very tentative conclusion put forth is that *perceived* work-values diversity is associated with burnout as is *actual* diversity in ethnicity/race. Although the body of evidence associated with other work-related outcomes interrelated to burnout is more abundant, the findings are inconclusive and in some cases contradictory. In general, the research regarding both age and ethnic/racial diversity has produced mixed findings. The most prominent pattern is that *actual* age diversity leads to negative outcomes (e.g., turnover intentions and poor interaction among workgroup members) whereas *perceived* age diversity has shown no effect. No definitive conclusions are drawn with regard to educational diversity given the paucity of literature. Finally, there is evidence of a negative relationship between *perceived* work-values diversity and individuals' attitudes toward their work and members of their workgroup.

There are several limitations and inconsistencies in the research related to the individual consequences of diversity in the workplace, particularly with regard to age, education, ethnicity/race, and work values. One particular reason for these results might be the lack of

attention paid to comparison groups or generalizability. There is also limited use of statistical modelling techniques: only three studies used such techniques (Cunningham, 2007; Hobman & Bordia, 2006; Riordan & Holliday Wayne, 2008). Yet, these techniques allow for the simultaneous testing of the attributes of interest on selected outcomes while controlling for measurement error. Moreover, the theoretical foundations of relational diversity indicate that the effects of dissimilarity between an individual and others within a workgroup are context dependent (Garcia-Prieto et al., 2003; Riordan, 2000). That is, the relevance, importance, and significance attached to an attribute (e.g., age) may yield different work-related attitudes and behaviour in a particular social context. Clearly, more research is needed to acquire a better understanding of the attributes that may determine whether relational diversity leads to burnout, and more specifically whether diversity creates conflict among nurses. The next section provides a review of the literature about interpersonal conflict as a mechanism through which diversity may lead to burnout.

2.3 Interpersonal Conflict as a Mediator of the Relationship between Diversity and Burnout

What are the processes occurring in the workplace that cause diversity to lead to poor outcomes among individuals within a workgroup? Leading diversity researchers call attention to the need to move beyond "black box" studies and to examine the mediating roles of various workgroup processes (e.g., integration, conflict, communication) that explain *why* or *how* certain outcomes occur as a result of relational diversity (Riordan, 2000; Tsui & Gutek, 1999; Williams & O'Reilly III, 1998). One particular intermediary process that has been emphasized is interpersonal conflict (Jehn & Chatman, 2000; Pelled, 1996a). Conflict is an important indicator of the quality of nurse–nurse interactions and to some extent reflects nurses' satisfaction with, and the quality of, the social climate in their workplace. The mechanisms by which diversity might influence the occurrence of burnout are a relatively new area of research, particularly with regard to the mediating role of interpersonal conflict. After defining interpersonal conflict, this portion of the literature review focuses on two central themes: (a) the association between diversity and conflict and (b) the association between conflict and burnout. In examining the research literature related to conflict, some emerging themes are identified that provide a

preliminary indication that conflict is a mediator of the relationship between diversity and burnout.

2.3.1   Defining Interpersonal Conflict

The term, interpersonal conflict is used frequently to refer to *perceived* incompatibilities commonly arising when members of a workgroup hold discrepant views about a particular situation or issue or have personal incompatibilities (Jackson & Joshi, 2004; Jehn & Bezrukova, 2004; Kirkman, Tesluk, & Rosen, 2004; Pelled, Eisenhardt, & Xin, 1999; Sacco & Schmitt, 2005; van Knippenberg, De Dreu, & Homan, 2004; Webber & Donahue, 2001; Williams & O'Reilly III, 1998). Barki and Hartwick's (2004) work on the conceptualization of interpersonal conflict indicated that the cognitive, affective, and behavioural elements of interpersonal conflict are reflected by three fundamental properties: disagreement, negative emotion, and interference. Several different cognitions (e.g., disagreement, differences in opinion, or divergent viewpoints) can be associated with interpersonal conflict; however, the most common cognition is disagreement. According to Barki and Hartwick (2004), "Disagreements exist when parties think that a divergence of values, needs, interests, opinions, goals, or objectives exists" (p. 232). The predominant *affective states* associated with interpersonal conflict are negative emotions including anger, distrust, fear, frustration, annoyance, hostility, distress, animosity, and jealousy. Finally, several different *behaviours* (e.g., debate, argumentation, competition, political manoeuvring, backstabbing, aggression, hostility, and destruction) are linked to interpersonal conflict. Interpersonal conflict is generally thought to exist, however, only when such behaviour exhibited by one person interferes with or opposes another person's attainment of his or her own interests, objectives, or goals (Barki & Hartwick, 2004).

Barki and Hartwick's (2004) typology for conceptualizing and assessing interpersonal conflict in organizations specifies the need to examine three properties (i.e., cognition/disagreement, behaviour/interference, and affect/negative emotion), and the ability to identify more clearly the nature or types of interpersonal conflict. Organizational scholars suggest that the various types of interpersonal conflict can be classified according to their content and focus (e.g., task versus relationship) (Barki & Hartwick, 2004). Interpersonal

incompatibilities or disagreements among workgroup members generated by personality differences, differences of opinions, or nonwork-related preferences are described as *relationship conflict* (also called *emotional* or *affective conflict*) (Barki & Hartwick, 2004; Jehn & Bendersky, 2003; Jehn & Chatman, 2000). Task-centred disagreements, on the other hand, concern either the content or the process of a task (Jehn & Bendersky, 2003). *Task conflict* (also labelled *substantive*, *cognitive*, or *content conflict*) refers to disagreement about the content and goals of the tasks or work being performed, including differences in viewpoints, ideas, and opinions (Barki & Hartwick, 2004; Jehn & Bendersky, 2003). Conflict arising from the process of a task, or *process conflict* (also called *procedural* or *distributive conflict*), focuses on disagreements about how to accomplish a task, who is responsible for a task, or the delegation of duties and resources (Jehn & Bendersky, 2003). Jehn and Bendersky (2003) explicated the distinction between process and task conflict: "Process conflicts are about the means to accomplish the specific tasks, not about the content or substance of the task itself, but about the strategies for approaching the task" (p. 201). Although each conflict type is distinct, under some circumstances, task-related conflict may evolve into relationship conflict, or vice versa (Jehn & Bendersky, 2003; Jehn & Mannix, 2001); for example, if workgroup members harbour particularly strong feelings about a task issue, they may become emotional about an issue (Jehn, 1997; Jehn et al., 1999). Nonetheless, distinctions between task-related and relationship conflict lead to different predictions about the effect of conflict on individual outcomes such as burnout as well as workgroup outcomes (Jehn & Bendersky, 2003). Identifying the constituent properties of interpersonal conflict, as well as their foci and targets, can provide greater clarity to the meaning of the construct and suggests several theoretical and methodological implications (Jehn, 1997; Pelled & Adler, 1994).

**2.3.2	Empirical Literature Concerning Nurses' Interpersonal Conflict**

The literature in nursing has established that the social climate in which nurses work is fraught with poor nurse–nurse interpersonal relationships, which include various forms of conflictive interactions (Almost, 2006; McKenna, Smith, Poole, & Coverdale, 2003; Quine, 2001; Sa & Fleming, 2008; Stevens, 2002; Yildirim & Yildirim, 2007). In support of these claims, a few qualitative researchers have identified the presence of conflict among nurses in the workplace, which is often characterized as horizontal violence, bullying, or dysfunctional nurse–nurse interactions (Farrell, 1998; Randle, 2003; Taylor, 2001). Others have established that a common source of workplace stress and worry is poor interpersonal relationships (Jobquality.ca, 2009b), which may affect the care provided (Shields & Wilkins, 2006). Approximately one in seven employed Canadians report that poor interpersonal relations in their workplace are a source of stress or excess worry (Jobquality.ca, 2009b). In 2005, among Canadian registered nurses, almost one half (46%) reported low coworker support (Shields & Wilkins, 2006). At 48%, those between the ages of 45 and 54 years were found to be slightly more likely to report low coworker, but on the whole the differences across age groups were small (younger than 35 years = 44% and 55 years or older = 39%). In this large, national survey, coworker support was determined by assessing nurses' exposure to conflict and the helpfulness of others at work. Both female and male nurses were found to be exposed to hostility or conflict within their workgroup (44% and 50%, respectively). Moreover, 47% did not feel supported by their coworkers (Shields & Wilkins, 2006).

Other researchers have identified similar patterns confirming the presence of conflictive interactions among nurses. For example, Rowe and Sherlock (2005) reported that the most common source of verbal aggression frequently experienced by nurses was from other nurses, specifically their staff-nurse colleagues. A small percentage (13%) reported that a verbally abusive experience contributed to a practice error; in one of six of these cases, the experience remained unresolved (Rowe & Sherlock, 2005). The most common long-term consequences of verbally abusive experiences with other nurses were poor working relationships with the aggressor, job dissatisfaction, a diminished sense of well-being, and a lack of trust and sense of support in the workplace (Rowe & Sherlock, 2005). In a different study, McKenna et al.

(2003) found that nurses in their first year of practice frequently experienced covert interpersonal conflict, the most common types were feeling undervalued by other nurses, experiencing a lack of supervision, and being distressed by the conflict occurring among others. Those under the age of 30 years were more likely to experience interpersonal conflict, particularly being undervalued and verbally humiliated (McKenna et al., 2003). Some identified consequences of the conflict experienced by new graduates were absenteeism (14%) and intentions to leave the profession (34%). In summary, interpersonal conflict is prevalent within nursing workgroups and manifests itself in various forms. The following sections each focus on an individual factor that may cause conflict in the workplace, specifically the diversity of nurses relative to others within their workgroups and burnout as an effect of conflict among nurses.

2.3.3 The Empirical Literature Concerning the Relationship between Relational Diversity and Interpersonal Conflict

My search of the literature did not identify any published studies examining the link between relational diversity and conflict in nursing workgroups. In the field of organizational behaviour, however, one study explored conflict as a mediator between diversity and worker morale (i.e., satisfaction, intent to remain, and work commitment) (Jehn et al., 1999). Jehn et al. (1999) reported that the effect of *perceived* work-values diversity on worker morale was mediated by both *relationship* and *process* conflict. No other relational diversity attributes were examined. Furthermore, the mediating role of *task* conflict was not examined. Given the paucity of research regarding conflict as a mediator, I turned to the existing research regarding the direct effects between select diversity attributes and conflict. Six studies were located that examined the diversity–conflict linkage from a relational diversity approach. Three of the studies examined individuals' involvement in conflict (Hobman & Bordia, 2006; Hobman et al., 2003; Pelled, Xin, & Weiss, 2001) and the others examined individuals' perceptions of the amount of conflict that occurred within the workgroup (Jehn, Chadwick, & Thatcher, 1997; Jehn et al., 1999; Pelled, 1996b). I considered the findings of these studies according to each type of conflict: relationship, task, and process conflict. Methodological issues associated with these findings are discussed in the summary portion of this section.

2.3.3.1 Individuals' Involvement in Conflict

Individuals' involvement in conflict has been associated with select relational diversity attributes. Grouping diversity attributes, Hobman et al. (2003) found that *perceived* values diversity was predictive of both relationship and task conflict (Hobman et al., 2003); however, the other demographic diversity attributes investigated were not found to be significant. Using objective measures of individual dissimilarity, Pelled et al. (2001) reported that greater age dissimilarity between individuals and other workgroup members increased the likelihood of relationship conflict; however, it was not predictive of task conflict (Pelled et al., 2001). In a recent longitudinal study of 165 university graduate students in business administration, Hobman and Bordia (2006) explored the consequences of relational diversity on individuals' involvement in conflict and determined whether the effects of *actual* value diversity strengthened across time. Individuals who differed from other members of the project team with regard to their values were more likely to directly experience relationship and task conflict at Time 2, whereas *actual* dissimilarity in age and ethnicity/race were not significant. For individuals who reported greater identification with their project team, greater *actual* age and ethnic/racial diversity resulted in less task conflict. The changes over time in the association between diversity and conflict were not statistically significant (Hobman & Bordia, 2006). This lack of significance could be due to the referent group, which varied in size, the amount of interaction within the group, and the permanence of the group. No studies were located that examined the link between diversity and individuals' involvement in process conflict.

2.3.3.2 Individuals' Perceptions of Conflict within their Workgroup

The second approach through which conflict has been explored is by measuring individuals' perceptions of the amount of conflict occurring within their workgroup. Work-values diversity has been consistently associated with *relationship conflict*, whereas mixed findings have been reported for other attributes. Jehn et al. (1997; 1999) reported that individuals whose values (*actual* and *perceived*) were different from others in their workgroups were more likely to report that members of the workgroup experienced a greater amount of relationship conflict. *Actual* differences in gender and tenure were also found to be predictive of relationship

conflict, whereas education, age, and ethnicity/race were not (Jehn et al., 1997; Jehn et al., 1999; Pelled, 1996b).

Other researchers have found that *task conflict* is a consequence of some diversity attributes. For example, Jehn et al. (1997; 1999) showed that value dissimilarity was predictive of task conflict, whereas the effects of other demographic attributes were less conclusive. Although not studying relational diversity *per se*, Jehn (1994) also reported that individuals whose work values were not congruent with those of their workgroup experienced greater task conflict. Jehn et al. (1997) reported that *actual* dissimilarity in education and in work values was found to be positively predictive of task conflict; however, a greater percentage of the variance was explained by workgroups having dissimilar values. *Actual* age diversity and *actual* ethnic diversity were not associated with task conflict, whereas *perceived* value diversity and *actual* informational diversity (i.e., education, functional area, and position) were (Jehn et al., 1997; Jehn et al., 1999). Congruent with these findings, measures of *perceived* value diversity, compared with *actual* measures, have been show to explain more of the variance in task conflict.

A third form of conflict, *process conflict*, has received limited attention by researchers in comparison with relationship and task conflict. Process conflict has been found to be significantly and positively predicted by *perceived* values diversity (Jehn et al., 1999); a greater perception of individual differences in values relative to other workgroup members resulted in individual perceptions of more process conflict present. In contrast, *actual* informational diversity (i.e., education, functional area, and position) and social category diversity (i.e., gender and age) were found not to be predictive of individual perceptions of process conflict (Pelled, 1996b).

2.3.3.3   Summary

The previous published studies of the association between relational diversity and conflict have produced mixed findings. Such findings can be partially attributed to differences in study populations (e.g., service and professional workers at a large public sector organization, production workers at an electronics assembly plant in Central Mexico, graduate-level business students, employees of household-goods moving companies, and blue-collar employees of electronics manufacturing facilities), the classification of diversity attributes (e.g., discrete categories versus grouping categories), and the operationalization of relational diversity (e.g.,

actual versus *perceived*). Notwithstanding these limitations, this body of evidence, albeit small, suggests that there is a link between relational diversity and conflict. A common theme is that individual differences in values, whether *actual* or *perceived*, are indicative of relationship conflict, task conflict, and process conflict. Furthermore, one could cautiously conclude that *actual* differences in some demographic attributes may be associated with conflict: for example, (a) education with individual perceptions of task conflict and (b) age with individual involvement in relationship conflict. Interestingly, measures of *perceived* diversity, rather than *actual* diversity, were found to account for a greater percentage of the variance in conflict. This section of the literature review has provided some evidence that diversity is a plausible cause of conflict among nurses (which is a necessary condition for mediation); however, the study of the linkages between diversity and conflict is in its infancy, and further research is warranted. In the next section, I discuss the literature regarding burnout as a potential consequence of conflict, which is another necessary condition to establish that conflict is a mediator of the relationship between diversity and burnout.

2.3.4 The Empirical Literature Concerning the Relationship between Conflict and Burnout

Interpersonal conflict among nurses, which is common in the workplace but often subtle, is an unpleasant experience that results in negative attitudes and behaviour. The adverse consequences of interpersonal conflict may include, but are not limited to, job dissatisfaction, weak organizational commitment, absenteeism, lack of involvement, burnout, and turnover (Almost, 2006; Ayoko, Callan, & Hartel, 2003; Cox, 2001, 2003; De Dreu, van Dierendonck, & Maria, 2004; Gardner, 1992; Jehn & Bendersky, 2003). Specifically, researchers have shown that in the general population and among healthcare employees, the occurrence of burnout, particularly emotional exhaustion, can be attributed to negative collegial interactions and interpersonal conflict (Giebels & Janssen, 2005; Mulki, Jaramillo, & Locander, 2008; Taris, Le Blanc, Schaufeli, & Schreurs, 2005). Moreover, positive collegial relationships have been associated with less job-related stress (Jobquality.ca, 2009b; Tervo-Heikkinen, Partanen, Aalto, & Vehvilainen-Julkunen, 2008).

A preliminary theme identified in the field of nursing is the link between conflict and burnout. As this is a relatively new area of research, only six relevant studies were located. A

limitation of this body of research is that many researchers predominantly examine the emotional exhaustion aspect of burnout or, in one instance, burnout as a unitary construct. Hillhouse and Adler (1997) used the Staff Burnout Scale for Health Professionals to examine the characteristics of groups experiencing low, moderate, and high levels of burnout. They found that interpersonal conflict among nurses was one of several stressors that resulted in feelings of burnout (Hillhouse & Adler, 1997).

Of five studies that used the Maslach Burnout Inventory, only two examined the effects of conflictive nurse–nurse interactions on all three aspects of burnout (Fujiwara, Tsukishima, Tsutsumi, Kawakami, & Kishi, 2003; Payne, 2001). For this reason, I present the literature with regard to each aspect of burnout: emotional exhaustion, depersonalization, and personal accomplishment. A few research teams have reported that conflictive interactions among nurses were found to be positively correlated with emotional exhaustion (Payne, 2001; Stordeur, D'Hoore, & Vandenberghe, 2001). Similarly, Leiter and Maslach (1988) found that unpleasant relationships with coworkers resulted in individuals' feeling emotionally exhausted. In two different studies involving Japanese nurses, the research teams reported that coworker conflict was not significantly associated with emotional exhaustion (Fujiwara et al., 2003; Kitaoka-Higashiguchi, 2005). The differences pertaining to the relationship between conflict and emotional exhaustion may be related to the different populations for which the samples were drawn (e.g., North American versus Japan).

To a lesser extent, depersonalization also has been addressed as a consequence of interpersonal conflict. Two studies examined the relationship between interpersonal conflict and depersonalization. Both supported the hypothesis that conflict with other nurses resulted in depersonalization (Fujiwara et al., 2003; Payne, 2001). Among hospices nurses, nurse–nurse conflict explained the greater proportion of the variance in depersonalization (21%) relative to other occupational stressors (Payne, 2001). Positive interactions among coworkers were found to be beneficial in lessening the occurrence of depersonalization (Leiter & Maslach, 1988).

The other aspect of burnout, personal accomplishment, has received minimal attention from researchers. In one study, Payne (2001) concluded that personal accomplishment was not associated with interpersonal conflict among nurses. In other words, experiencing interpersonal conflict with colleagues at work did not seem to cause these nurses to evaluate themselves in a

44

negative manner. In summary, these studies contribute to the evidence indicating that a potential consequence of interpersonal conflict is burnout, particularly emotional exhaustion and depersonalization. A limitation of this body of research is that it does not acknowledge the types of interpersonal conflict (e.g., relationship, task, and process conflict) occurring between nurses and their colleagues.

2.3.5   Summary

Some documentation in the nursing literature addresses the prevalence of interpersonal conflict within nursing workgroups. What is not clear from this body of research is why such conflict occurs, the particular types of conflict that occur (e.g., task, process, or relationship), and their detrimental effects. Additional research is required to obtain a more thorough understanding of the individual factors that engender such conflict and the impact it has on nurses. No research has been conducted to examine specifically whether conflict, arising from individual differences within the nursing workforce contributes to burnout. The portions of the literature regarding the possible diversity–conflict–burnout linkages is sparse, fragmented, and in a few instances contradictory. Nonetheless, evidence from the field of organizational behaviour provides some preliminary insights into the relationship between diversity and conflict at the individual level. Specifically, work-values diversity, whether *actual* or *perceived*, is indicative of relationship conflict, task conflict, and process conflict. Some demographic attributes, for example age and education, are more salient than others in explaining each type of conflict. The evidence presented in the literature also hints toward the possibility that chronic and unresolved conflict is destructive to the individual and the larger work community, which may lead to burnout, particularly emotional exhaustion and depersonalization. Further research is required to understand the complexities of whether interpersonal conflict is salient in explaining how diversity results in burnout.

2.4   Chapter Summary

Joining the many hints from the three main bodies of literature reviewed, a plausible conceptual model is presented with regard to the direct effects of *actual* and *perceived* relational diversity on burnout. It is plausible that interpersonal conflict may be a mechanism by which diversity leads to burnout. In understanding the complexities of diversity in the workplace some noteworthy methodological shortcomings include the limited use of modelling techniques for data analysis, the correlational nature of most of the studies, and the use of a variety of sample populations and referent groups.

Notwithstanding the aforementioned methodological limitations, the various bodies of evidence relevant to diversity in the nursing workforce indicate that each attribute does not necessarily result in the same outcome. For example, differences in observable attributes such as *perceived* age and ethnicity/race (*actual* and *perceived*) may be associated with negative interactions among members of a workgroup, and *perceived* differences in work values may influence individuals' attitudes toward their work. A few researchers have examined the link between diversity and burnout in non-nursing populations; however, the findings are fragmented and in some instances inconclusive. Researchers examining the outcomes of diversity have primarily focused on work-related factors that are interrelated with the burnout construct. In such instances, *actual* age diversity has been associated with turnover intentions and poor collegial relationships. Mixed results are available with regard to the impact of *actual* ethnic/racial diversity. Very limited information exists with regard to educational diversity (*actual* and *perceived*) and *perceived* ethnic/racial diversity. Work values diversity, however, stands out as a particularly salient attribute that may contribute to individuals' negative attitudes toward their work and other members of their workgroup. In general, there is indication that individuals working in diverse workgroups may experience some negative consequences. Undoubtedly, research is needed to address the social factors in their work environment that affect the well-being of nurses and contribute to the burnout they frequently experience.

In considering the mechanisms by which diversity leads to burnout, the literature relevant to interpersonal conflict reveals that relational diversity attributes such as work values, education, and age may be important predictors of relationship and task conflict. Moreover,

several researchers have highlighted that burnout, particularly emotional exhaustion and depersonalization, is a consequence of the conflict that arises between nurses. Given the prevalence of burnout and interpersonal conflict in the work environment, there is a need to obtain a greater understanding of the social aspects of the workplace and their contributions to the quality of healthcare work environments. Building upon the literature review of the direct and indirect effects of relational diversity in the workplace, the following chapter highlights a postulated conceptual model that specifies the means by which diversity is hypothesized to lead to burnout and the mechanisms by which this occurs – that is, the experience of interpersonal conflict.

3 CONCEPTUAL MODEL AND HYPOTHESES

This chapter provides an overview of a conceptual model specifying how diversity in the workplace is hypothesized to lead to burnout. In addition to articulating direct effects between diversity and burnout, the conceptual model delineates how the degree of diversity between an individual and others within a workgroup leads to interpersonal conflict, and how this conflict, in turn, leads to burnout. In other words, the model reveals how the influence of relational diversity in age, education, ethnicity/race, and work values on burnout (emotional exhaustion, depersonalization, cynicism, and a diminished sense of personal accomplishment) is explained through the mediating effects of relationship, task, and process conflict. The relationships among the constructs of interest are based on two complementary theories: social identity theory and similarity–attraction theory. The conceptual model is illustrated in Figure 3.1 to Figure 3.4.

3.1 Theoretical Foundations

Much of the relational diversity research is predicated on the logic of social identity theory (Tajfel & Turner, 1986; Tajfel, 1978) and its newer extension self-categorization theory (Turner 1982, 1987), which provides a social psychological perspective of group members' identification with their group as a whole, rather than with individual members within that group (Brewer, 1995; Chattopadhyay, George, & Lawrence, 2004). Embedded in these theories is the notion that the individual's sense of self is comprised of both a personal identity and a social identity (Ashforth, 2001). Two key premises of social identity theory are that individuals: (a) derive a significant portion of their identity from the social categories to which they belong and (b) have a desire to maintain a high level of self-esteem and a positive self-identity (Riordan, 2000).

According to social identity theory, individuals use salient attributes to define themselves and others as either belonging to various social categories that share some common identity, or as being members of different categories (Northcraft, Polzer, Neale, & Kramer, 1995; Tsui, Xin, & Egan, 1995). Through a process of social comparison, or self-categorization, the individual categorizes himself or herself and others into groups by attaching value to particular social attributes that are then used to provide meaningful distinctions between people or subgroups of people (Ashforth, 2001; Riordan, 2000). These social identifiers or identities are

relational and comparative in that category membership is defined relative to the members of other categories (Ashforth, 2001). By identifying with a particular social category, "individuals perceive themselves as psychologically intertwined with the fate of the category, sharing its common destiny, and experiencing its successes and failures" (Ashforth, 2001, p. 25). As individuals begin to classify themselves and others, they usually assume the *perceived* prototypical or exemplary characteristics of the category as their own. Additionally, the unique attributes of individuals are downplayed as they come to see themselves as more or less typical of the social category. When the social identity is salient, individuals think and act as exemplars of the category (Ashforth, 2001). Because individuals want to sustain a high level of self-esteem and a positive self-identity, they tend to accentuate similarities within and differences among categories, and they tend to develop more positive opinions of their own category (the in-group) and negative opinions of those outside of their category (the out-group) (Ashforth, 2001; Webber & Donahue, 2001). Specific persons who exemplify the salient attributes become members of the in-group, while those who are different represent members of the out-group (Ashforth, 2001), thereby creating we–they or us–them distinctions that could potentially affect individual behaviour and result in poor collegial relationships (Hobman, Bordia, & Gallois, 2003; van Knippenberg, De Dreu, & Homan, 2004).

The basic premise of the similarity–attraction perspective is that "individuals who possess similar individual characteristics and attitudes will perceive one another as similar and will be attracted to each other" (Chuang, Church, & Zikic, 2004, p. 28). Other researchers hypothesize that this initial attraction between oneself and others, established through perceptions of similarity or dissimilarity in visible demographic attributes, leads to inferences about similarities in values, beliefs, and attitudes (Tsui, Xin, & Egan, 1995). This initial perception of others may change when detailed information about less-visible or nondemographic attributes (e.g., values, beliefs, attitudes, and knowledge) are obtained. Thus, the meanings assigned to attributes are socially constructed as individuals act in, and toward, the world through social interaction, which varies among individuals, from one context to another, and over time. Regardless of the attributes leading to an initial attraction, individuals develop a sense of predictability, comfort, and confidence with similar others (Harrison, Price, & Bell, 1998; Tsui et al., 1995).

3.2 The Conceptual Link between Relational Diversity and Burnout: Why are Dissimilar Individuals More Likely to Experience Burnout?

In the presence of diversity, there are several reasons why individuals may experience burnout. Similarity attraction and categorization processes result in "othering" where individuals thought to be different from oneself are marked and named as such (Canales, 2000; Johnson et al., 2004). Those perceived as different from the dominant social category may experience covert forms of social mistreatment, which may cause individuals to have difficulty in relating to their colleagues, and vice versa. The noted dissimilarity among individuals in a workgroup is likely to affect the level of respect and support among members of the group, the ease of their communication, and the degree to which they have a sense of belonging or attachment to their workgroup (Hobman et al., 2003; Pelled, 1996b). Individuals experiencing ongoing, stressful collegial relations may feel emotionally drained and depleted, and, in some cases, may have negative feelings about their colleagues, may feel like they are no longer able to give themselves to others, and may come to view their jobs negatively (Cordes & Dougherty, 1993; Maslach, Schaufeli, & Leiter, 2001). Moreover, working in an environment that is disrespectful and unsupportive may cause individuals to voluntarily isolate themselves and to minimize contact with all people (Maslach, 1982). Such individuals are more likely to develop depersonalized responses (e.g., negative and callous interactions) and to develop indifferent attitudes toward their work and others within the workgroup (and possibly their clients). According to Maslach (1982), "'Just leave me alone and let me do my job by myself' is the message that comes from the individual who sits off in a corner, does not socialize with coworkers at lunch or coffee breaks, and leaves immediately when the day is done" (p. 43). If this isolation persists individuals' feelings of efficacy may diminish (Maslach et al., 2001). Individuals who do not exemplify the dominant majority may become isolated and excluded (Canales, 2000; Hobman et al., 2003; Pelled, 1996b). Individuals working in such an environment may (a) feel emotionally drained, (b) choose to leave by psychological withdrawing from the workgroup and distancing themselves from aspects of their work and the people with whom they work, and (c) experience feelings of personal inadequacy (Maslach et al., 2001).

Individuals sharing a social category often are assumed to share similar values and interest, and thus in-group members are often viewed as being more predictable, trustworthy, and likely to reciprocate favours than are members of an out-group (Schneider & Northcraft, 1999).

When there is less personal attraction among members of a workgroup, individuals' core values and beliefs about their work are threatened, and members are less likely to develop a sense of predictability and confidence in each other's abilities and behaviour (Harrison et al., 1998; Tsui et al., 1995). When individuals are judged or criticized they may develop feelings of inadequacy and may self-impose a verdict of failure. They may experience diminished feelings of competence or achievement in their work (Schaufeli, Maslach, & Marek, 1993).

Collectively, social identity theory and similarity–attraction theory suggest that diversity between an individual and others within a workgroup leads to feelings of emotional exhaustion and depersonalization, and a diminished sense of personal accomplishment. Although these theories emphasize people's perceptions, diversity researchers have highlighted the importance of an individual's *actual* difference from other members of the workgroup. Thus, the following hypotheses were proposed (see Figure 3.1 and Figure 3.2):

> **Hypothesis 1:** *Actual* relational diversity between an individual and others within the workgroup is positively associated with emotional exhaustion, depersonalization, and cynicism, and is negatively associated with personal accomplishment.

> **Hypothesis 2:** *Perceived* relational diversity between an individual and others within the workgroup is positively associated with emotional exhaustion, depersonalization, and cynicism, and is negatively associated with personal accomplishment.

Researchers approaching diversity from a relational perspective have increasingly recognized the importance of nondemographic attributes, especially when investigating perceived dissimilarity (Clark, Ostroff, & Atwater, 2002). The various bodies of literature relevant to diversity also support the possibility that a range of attributes may lead to burnout within the nursing workforce. Several possible attributes could be used as criteria for creating social divisions among individuals in workgroups; this research focused on four attributes (i.e., age, education, ethnicity/race, and work values) that were identified as being potentially salient to the population of interest.

Hypothesis 1: *Actual* Diversity

Hypothesis 1.1: *Actual* **age diversity** between an individual and others within a workgroup is positively associated with emotional exhaustion, depersonalization, and cynicism, and is negatively associated with personal accomplishment.

Hypothesis 1.2: *Actual* **educational diversity** between an individual and others within a workgroup is positively associated with emotional exhaustion, depersonalization, and cynicism, and is negatively associated with personal accomplishment.

Hypothesis 1.3: *Actual* **ethnic/racial diversity** between an individual and others within a workgroup is positively associated with emotional exhaustion, depersonalization, and cynicism, and is negatively associated with personal accomplishment.

Hypothesis 1.4: *Actual* **work values diversity** between an individual and others within a workgroup is positively associated with emotional exhaustion, depersonalization, and cynicism, and is negatively associated with personal accomplishment.

Hypothesis 2: *Perceived* Diversity

Hypothesis 2.1: *Perceived* **age diversity** between an individual and others within a workgroup is positively associated with emotional exhaustion, depersonalization, and cynicism, and is negatively associated with personal accomplishment.

Hypothesis 2.2: *Perceived* **educational diversity** between an individual and others within a workgroup is positively associated with emotional exhaustion, depersonalization, and cynicism, and is negatively associated with personal accomplishment.

Hypothesis 2.3: *Perceived* **ethnic/racial diversity** between an individual and others within a workgroup is positively associated with emotional exhaustion, depersonalization, and cynicism, and is negatively associated with personal accomplishment.

Hypothesis 2.4: *Perceived* **work values diversity** between an individual and others within a workgroup is positively associated with emotional exhaustion, depersonalization, and cynicism, and is negatively associated with personal accomplishment.

Figure 3.1   **Model 1: The Effect of Actual Relational Diversity on Burnout**
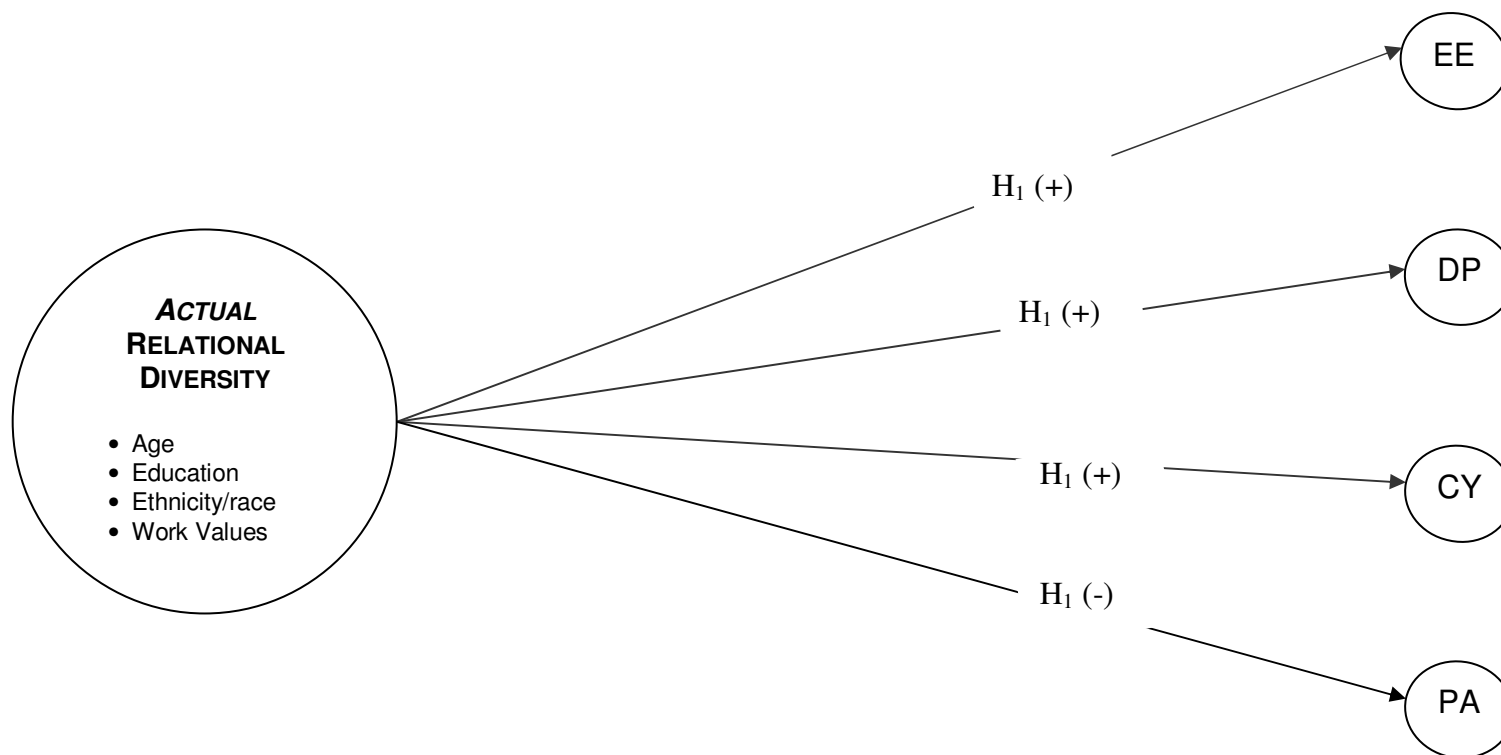
Note. EE = Emotional exhaustion, DP = Depersonalization, CY = Cynicism, and PA = Personal accomplishment.

Figure 3.2   Model 2: The Effect of Perceived Relational Diversity on Burnout
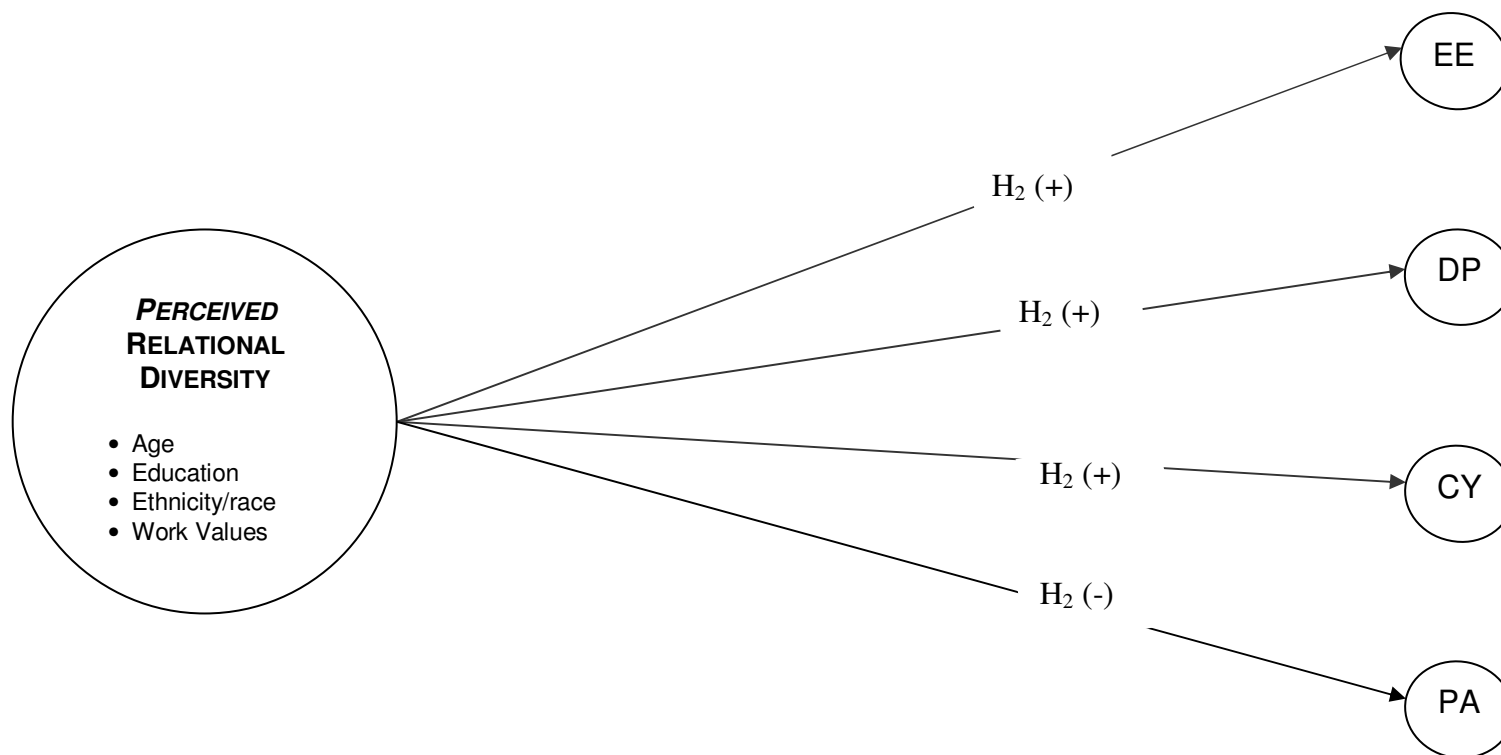
Note. EE = Emotional exhaustion, DP = Depersonalization, CY = Cynicism, and PA = Personal accomplishment.

3.3 The Conceptual Link between the Effect of Relational Diversity on Burnout as Mediated by Interpersonal Conflict

In this section, I explore the reasons why dissimilar individuals are more likely to be involved in conflict (relationship, task, and process) and subsequently experience more burnout (emotional exhaustion, depersonalization, cynicism, and a diminished sense of personal accomplishment). There are several reasons why individuals who are different from others within a workgroup may experience interpersonal conflict. First, social categorization and similarity attraction processes increase the likelihood of unpleasant working relationships and negative exchanges among members of a workgroup, particularly for those who are different. The differences that separate members of a workgroup may affect the development of empowering relationships between individuals and their "othered" coworkers. Individuals may have trouble understanding or being understood by members of other social categories (Hobman et al., 2003: Pelled, 1996b), and their interactions are likely to be more antagonistic than those among individuals within a category (Pelled, Xin, & Weiss, 2001). In such situations, individuals tend to develop frustrations with, and hostile attitudes towards, others and to think more negatively about their colleagues (Pelled, 1996). These strained relationships can further create interpersonal friction and unconstructive interpersonal exchanges. Through a lens of negative affect, it may be difficult for dissimilar individuals to see their workgroup in a positive light; hence, they may be particularly inclined to describe the group as having conflict, or they may be more likely to be personally involved in disagreements with their coworkers, or both (Hobman et al., 2003; Pelled, 1996). Moreover, the presence of individual diversity may increase the discomfort of the workgroup as a whole and may hamper communication among members; thus, it may make all workgroup members "edgy" and irritable, prompting frequent arguments among those who are similar to each other, in addition to those who are different (Pelled, 1996b).

Another underlying mechanism supporting the linkage between diversity and conflict is that individuals representing various social categories have contrasting values, goals, preferences, and opinions about work- and non-work-related activities (Hobman et al., 2003; Pelled et al., 2001). The more different individuals are from other workgroup members on a given attribute, the greater the likelihood of conflict developing (Hobman et al., 2003). This conflict occurs because people who are attracted to those who are similar to themselves often

share the same values and world view (Jehn, Chadwick, & Thatcher, 1997). "They also assume that similar others are easier to work and communicate with as well as believing they are more trustworthy" (Jehn et al., 1997, p. 290). People with dissimilar ages, educational backgrounds, or work values have different opinions and perspectives and tend to approach their work differently. These differences may result in greater involvement in disagreements about work-related topics (e.g., the goals of the work or how to accomplish the work) and relationship disagreements (Hobman et al., 2003; Jehn et al., 1997; Pelled et al., 2001). Conversely, individuals with similar values may have smoother interaction processes and more agreement, which minimize misunderstandings and work-related conflict (Jehn, 1994; Jehn et al., 1997). In this instance, "values can act as perceptual filters [where] members with similar values are more likely to prioritize and interpret group problems and events in similar ways" (Jehn et al., 1997, p. 288), which further reduces work-related (task and process) conflict. Dissimilarity of values also increases relationship and task conflict by reducing the degree to which group members identify with one another (Jehn et al., 1997). Congruent with these ideas, researchers have reported that *perceived* diversity in values among colleagues is predictive of relationship conflict and in some instances task and process conflict (Hobman et al., 2003; Jehn, Northcraft, & Neale, 1999). Others have reported that, to a lesser extent, the likelihood of relationship conflict increases with greater *actual* diversity on visible attributes, such as age; however, task conflict has been attributed to *actual* differences in education and work experience (Jehn et al., 1997; Jehn et al., 1999; Pelled et al., 2001).

A third possibility regarding why diversity may lead to interpersonal conflict is that through social categorization processes, in-group favouritism and out-group derogation can lead to stereotyping (Hobman et al., 2003). Through this process of "othering" those individuals thought to be different are noted and named as such (Canales, 2000; Johnson et al., 2004). The more dissimilar individuals are excluded and stereotyped, albeit sometimes unintentionally, the more the attributes of the in-group are solidified and reinforced (Canales, 2000; Hobman et al., 2003; Johnson et al., 2004). The greater the stereotyping, the less likely it is that individuals and their "othered" coworkers will compromise on their beliefs and values (Swearingen & Liberman, 2004). Not being able to find some middle ground increases the likelihood that individuals will engage in constant bickering and fighting, starting arguments with one another, and accentuating

trivial issues (Maslach, 1982). Moreover, when individuals identify with an in-group, they are much more likely to perceive the out-group as being responsible for any conflict (Garcia-Prieto, Bellard, & Schneider, 2003).

The consequences of being involved in, or exposed to, conflict among members of a workgroup can contribute to burnout. Individuals who experience disagreements with their colleagues are inundated with a plethora of negative feelings (e.g., anger, frustration, distress, fear, annoyance, distrust, animosity, and hostility) and may feel like they are not part of the workgroup (Maslach et al., 2001). Being involved in prolonged and unresolved conflict is destructive to individuals, causing them to feel emotionally drained and withdrawn from their work and other people, including their coworkers and clients. Individuals within a community characterized by unpleasant working relationships with members of their workgroup may isolate themselves and minimize contact as a means of reducing their interpersonal stress (Maslach, 1982, 2003). At the same time, individuals involved in conflict may display negative, callous, and indifferent attitudes toward others. Hostility and anger, attributed to conflict, can also result in professional derogations and lead to interference with one another's work (Maslach, 1982). The consequences of being excluded as a result of being different from others are often alienation, shrinking opportunities, and internalized oppression[7] (Canales, 2000). Collectively, this may result in greater tendency for dissimilar individuals of a workgroup to evaluate themselves negatively and, as a result, their feelings of efficacy may diminish (Wesolowski & Mossholder, 1997). Individuals having conflictive interactions with their colleagues may harbour a sense of futility about discussing work issues with their colleagues and are more likely to experience burnout (Wesolowski & Mossholder, 1997). Links between conflict and some aspects of burnout are evident in the research literature. For example, nurses' conflict with their colleagues at work is positively associated with emotional exhaustion and depersonalization but not a sense of diminished personal accomplishment (Fujiwara, Tsukishima, Tsutsumi, Kawakami, & Kishi, 2003; Payne, 2001; Stordeur, D'Hoore, & Vandenberghe, 2001).

---

[7] *Internalized oppression* is the process by which a member of an oppressed group comes to accept and live out the inaccurate myths and stereotypes applied to the group (Urban Dictionary, n.d.). External oppression becomes internalized oppression when a person comes to believe and act as if the oppressor's beliefs system, values, and life way constitute reality (Women's Rural Advocacy Programs, n.d.).

The degree to which an individual differs from other workgroup members on select attributes can have profound effects on the amount of conflict experienced. Being different not only shapes individuals' perspectives of the workgroup as having more conflict, but also influences individuals' involvement in conflict with their coworkers. The following hypotheses specify the indirect relationship between relational diversity and burnout as being mediated by the interpersonal conflict experienced by an individual (see Figure 3.3 and Figure 3.4).

Hypothesis 3: The effects of *actual* relational diversity on burnout are mediated by individuals' *perceptions* of conflict within the workgroup.

> **Hypothesis 3.1:** The effects of *actual* **age diversity** on emotional exhaustion, depersonalization, cynicism, and personal accomplishment are mediated by individuals' perceptions of relationship, task, and process conflict within the workgroup.
>
> **Hypothesis 3.2:** The effects of *actual* **educational diversity** on emotional exhaustion, depersonalization, cynicism, and personal accomplishment are mediated by individuals' perceptions of relationship, task, and process conflict within the workgroup.
>
> **Hypothesis 3.3:** The effects of *actual* **ethnic/racial diversity** on emotional exhaustion, depersonalization, cynicism, and personal accomplishment are mediated by individuals' perceptions of relationship, task, and process conflict within the workgroup.
>
> **Hypothesis 3.4:** The effects of *actual* **work values diversity** on emotional exhaustion, depersonalization, cynicism, and personal accomplishment are mediated by individuals' perceptions of relationship, task, and process conflict within the workgroup.

Hypothesis 4: The effects of *actual* relational diversity on burnout are mediated by individuals' *involvement* in conflict within the workgroup.

> **Hypothesis 4.1:** The effects of *actual* **age diversity** on emotional exhaustion, depersonalization, cynicism, and personal accomplishment are mediated by individuals' involvement in relationship, task, and process conflict within the workgroup.
>
> **Hypothesis 4.2:** The effects of *actual* **educational diversity** on emotional exhaustion, depersonalization, cynicism, and personal accomplishment are mediated by individuals' involvement in relationship, task, and process conflict within the workgroup.
>
> **Hypothesis 4.3:** The effects of *actual* **ethnic/racial diversity on** emotional exhaustion, depersonalization, cynicism, and personal accomplishment are

mediated by individuals' involvement in relationship, task, and process conflict within the workgroup.

Hypothesis 4.4: The effects of *actual* **work values diversity** on emotional exhaustion, depersonalization, cynicism, and personal accomplishment are mediated by individuals' involvement in relationship, task, and process conflict within the workgroup.

Hypothesis 5: The effects of *perceived* relational diversity on burnout are mediated by individuals' *perceptions* of conflict within the workgroup.

Hypothesis 5.1: The effects of *perceived* **age diversity** on emotional exhaustion, depersonalization, cynicism, and personal accomplishment are mediated by individuals' perceptions of relationship, task, and process conflict within the workgroup.

Hypothesis 5.2: The effects of *perceived* **educational diversity** on emotional exhaustion, depersonalization, cynicism, and personal accomplishment are mediated by individuals' perceptions of relationship, task, and process conflict within the workgroup.

Hypothesis 5.3: The effects of *perceived* **ethnic/racial diversity** on emotional exhaustion, depersonalization, cynicism, and personal accomplishment are mediated by individuals' perceptions of relationship, task, and process conflict within the workgroup.

Hypothesis 5.4: The effects of *perceived* **work values diversity** on emotional exhaustion, depersonalization, cynicism, and personal accomplishment are mediated by individuals' perceptions of relationship, task, and process conflict within the workgroup.

Hypothesis 6: The effects of *perceived* relational diversity on burnout are mediated by individuals' *involvement* in conflict.

Hypothesis 6.1: The effects of *perceived* **age diversity** on emotional exhaustion, depersonalization, cynicism, and personal accomplishment are mediated by individuals' involvement in relationship, task, and process conflict within the workgroup.

Hypothesis 6.2: The effects of *perceived* **educational diversity** on emotional exhaustion, depersonalization, cynicism, and personal accomplishment are mediated by individuals' involvement in relationship, task, and process conflict within the workgroup.

Hypothesis 6.3: The effects of *perceived* **ethnic/racial diversity** on emotional exhaustion, depersonalization, cynicism, and personal accomplishment are mediated by individuals' involvement in relationship, task, and process conflict within the workgroup.

Hypothesis 6.4: The effects of *perceived* **work values diversity** on emotional exhaustion, depersonalization, cynicism, and personal accomplishment are mediated by individuals' involvement in relationship, task, and process conflict within the workgroup.

3.4 Chapter Summary

People may experience burnout in response to being different from others within a workgroup. Being different from others, they may feel emotionally exhausted, display distant, negative, or cynical attitudes toward others, or experience a diminished sense of personal accomplishment. The influence of diversity on burnout is explained, in part, through the effects of relationship, task, and process conflict. These effects are explicated within the framework of social identity theory and similarity–attraction theory. In the next chapter, I provide an overview of the methods used to test the hypotheses explicated here.

Figure 3.3   Model 3: The Effect of Actual Relational Diversity on Burnout as Mediated by Interpersonal Conflict
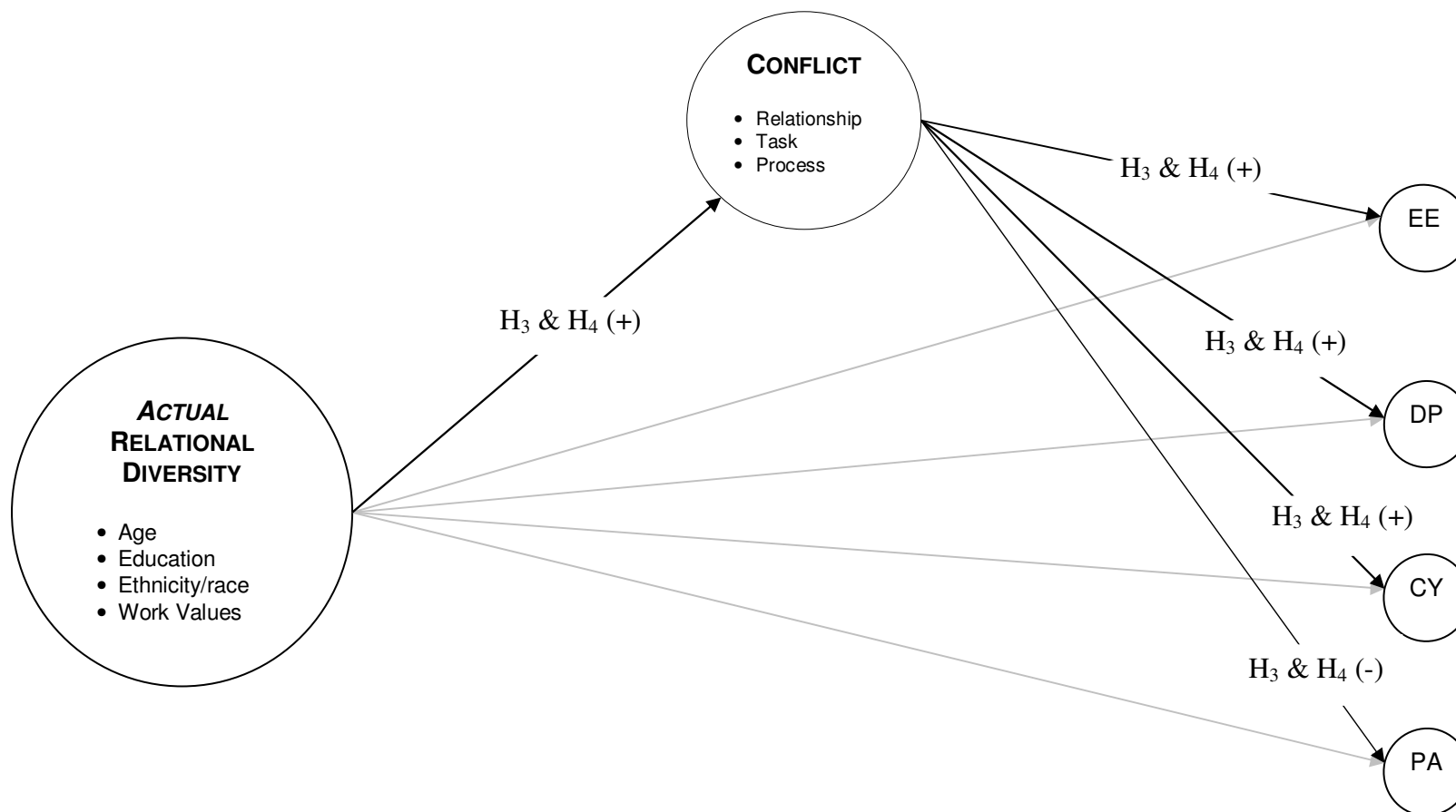
Note. EE = Emotional exhaustion, DP = Depersonalization, CY = Cynicism, and PA = Personal accomplishment

Figure 3.4   Model 4: The Effect of Perceived Relational Diversity on Burnout as Mediated by Interpersonal Conflict

CONFLICT

- Relationship
- Task
- Process

H_5 & H_6 (+)

EE

H_5 & H_6 (+)

H_5 & H_6 (+)

DP

PERCEIVED RELATIONAL DIVERSITY

- Age
- Education
- Ethnicity/race
- Work Values

H_5 & H_6 (+)

CY

H_5 & H_6 (-)

PA
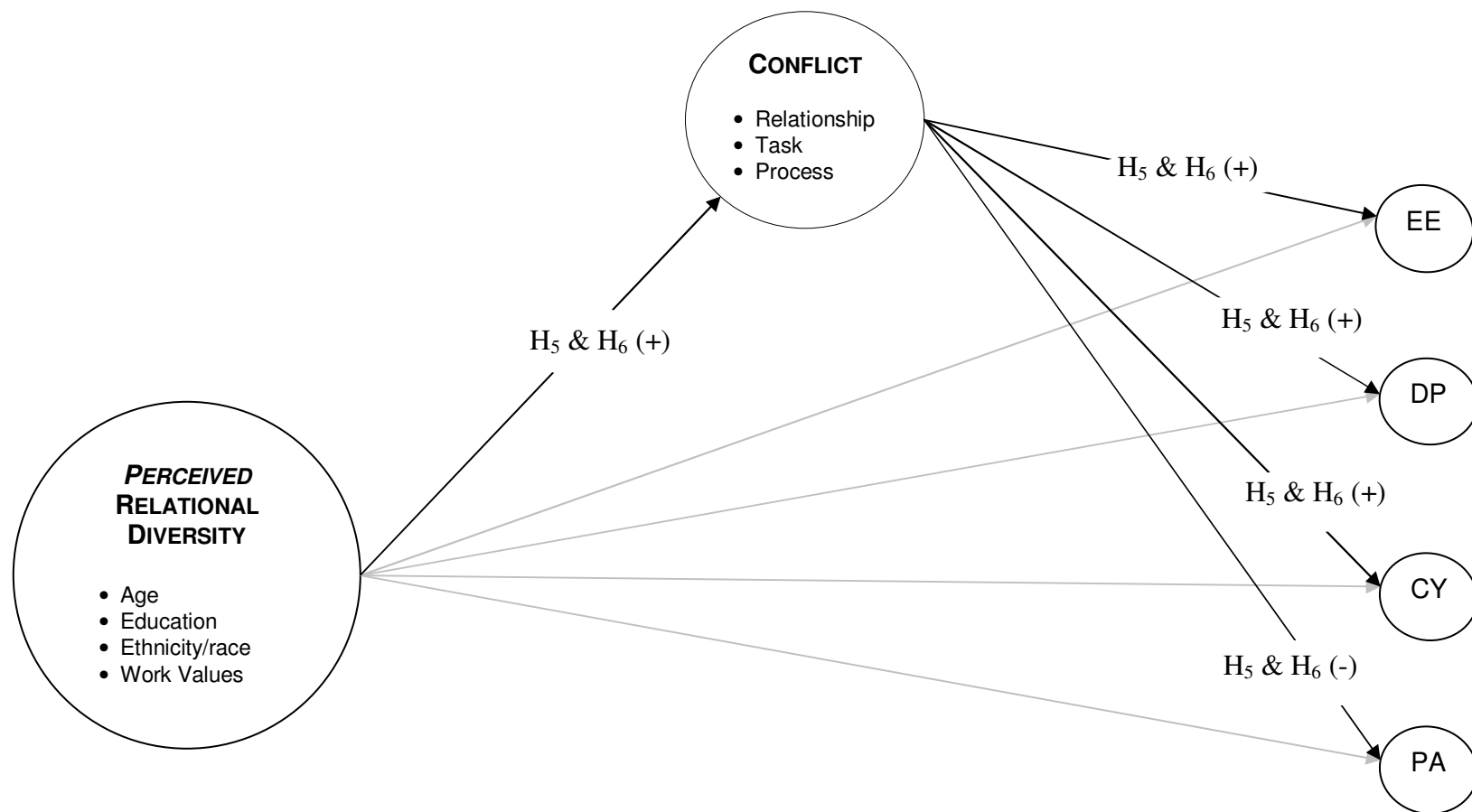
Note. EE = Emotional exhaustion, DP = Depersonalization, CY = Cynicism, and PA = Personal accomplishment

4 METHODS

This research study used a cross-sectional, correlational design to test the conceptual model presented in Chapter 3. Self-administered questionnaires were distributed to the nursing staff working at two acute care hospitals in British Columbia (BC), Canada. Structural equation modelling was used to test the theoretical model of relational diversity and its relationships with conflict and burnout. The following chapter provides an overview of the sampling strategy, data collection procedures, operationalization of the study constructs, methods for data analysis, and ethical considerations.

4.1 Sample

4.1.1 Setting and Participants

The population of interest was practicing nurses who provided direct client care in two acute care hospitals in the Lower Mainland of BC. The selection of nurses working in acute care facilities was based on the observations, in 2006, that 63% ($n = 18,109$) of the registered nursing workforce in BC identified their primary place of employment as a hospital and that 67% of registered nurses (RNs) working in the hospital setting were 40 years of age or older (Canadian Institute for Health Information, 2007b). For RNs employed by hospitals, the number of years that had passed since their graduation was distributed as: 0-10 years = 25%, 11-20 years = 28%, 21-30 years = 24%, and 31+ years = 21%). In BC, in 2006, about one third of RNs working in hospitals ($n = 18,109$) were employed full-time (34%). A smaller percentage worked part-time (18%) or on a casual basis (10%) (Canadian Institute for Health Information, 2007b). In addition, 90% of these RNs lived in urban areas (Canadian Institute for Health Information, 2007b). At the same time, slightly more than one half of the province's licensed practical nurses (LPN) were employed by hospitals ($n = 2,945$, 54%) and most provided direct care ($n = 5,313$, 98%) (Canadian Institute for Health Information, 2007a). About one half of the LPNs employed by hospitals were employed full-time (47%) and to a lesser extent casually (39%) or on a part-time basis (13%). Almost one half of these LPNs had completed their education 10 or more years in the past (Canadian Institute for Health Information, 2007a).

In general, large metropolitan areas such as the Lower Mainland are more ethnically diverse than the rural areas of BC. The selected health authority, in the Lower Mainland,

provides a wide range of healthcare services to approximately 1.5 million people; it has more than 8,000 nurses providing services in 12 acute care hospitals and various community programs. In consideration of the sample requirements and feasibility, two tertiary care hospitals were selected to initiate data collection. Each hospital has approximately 350 beds and collectively employed approximately 1,476 nurses (830 full-time equivalent) (Bennington, 2006).

In each hospital, the nurses (RNs and LPNs) who provided direct client care on the medical, surgical, pediatric, perinatal, and neonatal intensive care nursing units were targeted for inclusion in the study. The use of a relational approach to the study of diversity required the enrolment of close to the entire population of nurses in each work unit, as opposed to the drawing of a random sample. Some nursing units employed both RNs and LPNs, and both types of nurses were included. A recruitment plan was implemented to ensure that the maximum number of nurses from each work unit were included in the current study.

4.1.2 Recruitment of Participants

Relational diversity is more likely to influence and be affected by interpersonal relationships with people among whom interaction is frequent (Riordan, 2000), such as nursing unit colleagues, patient care leaders, unit-specific nursing educators, and clinical nurse specialists. The demographic composition of the people with whom a particular member interacts most within a workgroup has a stronger potential to shape the workgroup image he or she constructs. Actual diversity, therefore, was computed at the individual level of analysis. Nurses (RNs and LPNs) employed on a particular nursing work unit constituted the sample workgroup. To measure relational diversity and to enhance the interpretability of the findings, participants were recruited by sampling entire work units so that the study sample was represented by as many individuals as possible from each workgroup (Riordan, 2000). The work units were groups of nurses working in specific nursing units or departments that primarily provided direct client care to a specific population (e.g., medical, surgical, or obstetrical patients). All nurses in each work unit, regardless of their employment status, shift schedule,

position,[8] or employment status[9] (i.e., full-time, part-time, or casual), were invited to participate on a voluntary basis.

Colleagues were defined as the people with whom the participants had the most contact within their nursing work unit, including coworkers (RNs and LPNs), clinical educators (CNEs), clinical nurse specialists, and clinical practice leaders (e.g., patient care coordinators (PCCs) and clinical resource nurses (CRNs). If the recruited nurse worked on more than one unit (e.g., casual employment), she or he was asked to complete the questionnaire in reference to the workgroup with whom she or he interacted the most. The participants were required to be registered as a regulated nurse and to work on a regular basis. "Regular" employment on the nursing unit (e.g., working casual on a frequent basis) was required so that the participants could answer questions that required them to make comparisons between themselves and their coworkers, on their nursing unit, and to assess the amount of conflict on the nursing unit. Excluded from the study were nurses on leave (e.g., parental, education, sick, or disability leave), on gradual return to work, or those assigned to a float pool.[10] One month before distribution of the study materials, the nursing unit managers generated lists of nurses[11] employed on the

---

[8]   Nurses whose area of responsibility was coordinating client care (e.g., patient care coordinators or clinical resource nurses) or education (clinical nurse educators) were eligible for inclusion if they spent a significant amount of time interacting with members of a particular workgroup and, in some instances, their role may have included the provision of direct client care.

[9]   Because 60% of the new graduates were not employed in regular (permanent) nursing positions, nurses who were employed in regular, permanent (i.e., full-time or part-time), temporary full- or part-time, or casual positions were invited to participate (College of Registered Nurses of British Columbia, 2005). Regular full-time employees were those who were scheduled regularly to work at least 35 hours of work per week, on average, and regular part-time employees were those scheduled to work a minimum of 14.4 hours or equivalent per week but less than the full hours. Casual employment refers to those employees whose employment schedule did not guarantee a fixed number of hours of work per pay period and who were usually pre-booked or called in to relieve employees on short-term vacation, or sick leave, or to assist with workload demands. Temporary full-time or part-time employment refers to a temporary position in which the employment schedule guaranteed a regular number of hours of work per period for a specific time period (or until return of the incumbent). This usually applied to employees who were relieving other employees on a long-term leave or maternity leave or employees working in term positions (e.g., time defined projects or summer relief positions).

[10]   A float pool refers to a list of casual employees who were usually pre-booked or called in to relieve employees on short-term vacation, or sick leave, or to assist with workload demands. The float pools were usually hospital-wide float pools in that the nurses were assigned to work on several different units.

[11]   Not all lists were up-to-date.

nursing units from Sites A and B. A total of 879 nurses were initially identified as being eligible to participate (see Figure 4.1).

4.1.3   Sample Size

No formula was available for an *a priori* determination of the sample size required to produce sufficient statistical power because the solution of the structural equation models depended on the reliability of the indicators included, the number of parameters estimated, the distributions of the indicators, the extent to which collinearity was present, the extent to which the model was identified, and factors unknown at the beginning of the study (Hancock, 2006). Two approaches were considered during the planning phase of the study to ensure that an adequate sample size was obtained. First, the root mean square error of approximation (RMSEA) test of "not close fit" was used to estimate the sample size required to test overall model fit (Hancock, 2006; Hancock & Freeman, 2001; MacCallum, Browne, & Sugawara, 1996). To test a model with df = 250 and desired power (π) of 0.80, the requisite sample size depends on the level of noncentrality (ε) anticipated. For a perfectly specified model ($\varepsilon = 0$), a minimum of $n = 101$ individuals was estimated to be required (Hancock, 2006; Hancock & Freeman, 2001; MacCallum et al., 1996). Increasing the levels of possible noncentrality resulted in a corresponding increase in the required sample size to 125 and 403 for $\varepsilon = 0.02$ and 0.04, respectively. The model ultimately specified in this study had $df = 777$; consequently, a sample as small as 125 or as large as 403 would have resulted in sufficient power for the two levels of noncentrality, respectively. In consideration of the RMSEA test, a maximum n of 403 was considered sufficient to test for overall model fit with $\pi = 0.80$ (or greater) and $\varepsilon = 0.04$. Based on the experiences of other researchers who have surveyed nurses (Borkowski, Amann, Song, & Weiss, 2007; Cho, Laschinger, & Wong, 2006; Gregory, Way, LeFort, Barrett, & Parfrey, 2007; Zeytinoglu et al., 2007), a 30% to 58% response rate was anticipated. Based on a conservative response rate estimate (35%), the recruitment of 1,151 nurses was viewed as feasible and appropriate to obtain a final sample of about 400 nurses.

4.1.4   Survey Response Rates

The nursing workforce on some nursing units changed frequently during the data collection period. When visiting the work units, I assessed the nurses' eligibility, particularly for

the nurses with whom I did not have direct contact or who had not received the study materials. In these situations, follow-up occurred with the nursing unit manager to determine the nurses' eligibility (e.g., current employment status). In some instances, the original staff lists provided by the nursing unit managers, to guide recruitment efforts, were not up-to-date. Ongoing discussions revealed that some nurses were not reachable for a variety of reasons (see Table 4.1).

Table 4.1   Reasons for the Exclusion of Some Nurses Originally Identified as Eligible

Reason	Frequency (%)
Terminated employment (e.g., resigned or retired)	25 (17.5)
On leave (e.g., parental, education, sick, long-term disability, or gradual return to work)	34 (23.8)
Recently initiated employment (e.g., new hire or completing orientation) or employment pending	31 (21.7)
Self-identified or unit manager-identified as not being a regular member of the nursing unit (e.g., infrequent casual or float nurse on multiple units)	53 (37.0)
TOTAL	143 (100%)

Nurses who initiated or resumed their employment (e.g., recently hired or returned from leave) were asked to participate if they self-identified as having adequate contact with their coworkers on the nursing unit to ensure accurate responses to the questionnaire. Some nurses who had recently initiated their employment were not reachable. The nurses employed on a casual basis were eligible to participate if they *self-identified* as working "regularly"[12] on a nursing unit and were familiar with the other staff members of the unit. These atypical situations were considered on an individual basis to determine the nurses' eligibility status. The nurses deemed unreachable were deleted from the recruitment list. Of the 879 participants that were initially identified as being eligible, a final sample of 736 met the inclusion criteria (see Figure 4.1).

---

[12]   Not formally defined because each situation was considered on an individual basis and participants were allowed the opportunity to determine whether they were sufficiently familiar with their colleagues on the unit to answer the questions. In general, "regular" employment meant a minimum of 4 shifts a month.

Figure 4.1   Flow Diagram of Participant Recruitment

All possible
participants
(N = 879)

Total eligible
participants
(N = 736)
Site A, n = 340
Site B, n = 396

Participants excluded (n = 143):
- Terminated their employment before or during the study
- On leave or retired
- Infrequent employment on nursing unit (e.g., casual or float nurse)
- Self-identified or unit manager identified as not being a regular member of the nursing unit.

Questionnaire
returned
(N = 606)

130 nurses did not return a completed questionnaire.

Completed
questionnaires
(N = 603)

3 partial questionnaires excluded from analyses

Site A consisted of 8 nursing units and 340 nurses eligible to participate. Site B consisted of 9 nursing units and 396 nurses eligible to participate.[13] Table 4.2 illustrates the response rates of the potential participants. A total of 606 eligible nurses (Site A = 284 and Site B = 322) returned completed surveys. The gross completion rate, considering the 606 completed surveys, of the 879 participants identified by the managers as actively working as regulated nurses on the selected nursing units, was 68.9%. However, of the original potential participants, 143 (16.3%) were excluded because they were not actively employed on the nursing unit during the data collection period. Accordingly, a more reasonable calculated response rate is 81.9% (603 completed surveys used for data analyses from 736 eligible participants). On average, 83% of the nurses from each unit participated (range = 61% to 97%).

Table 4.2   Survey Response Rates

Type of rate	Comparison	Numerator/ denominator	Rate (%)
Gross response rate	All completions/All possible participants	606/882	68.7%
Most reasonable response rate (liberal)	All completions/Total eligible participants[a]	606/736	82.3%
Most reasonable response rate (conservative)	All completions used for analyses[b]/Total eligible participants	603/736	81.9%

[a]Excludes 143 participants that were not reachable due to inactive employment on the nursing unit.

[b]Excludes 3 partially completed questionnaires with less than 55% of the questions answered. Site A, *n* = 282 and Site B, *n* = 321.

4.2   Data Collection Process

The data were collected through a self-administered questionnaire that was distributed to the nurses on their unit of primary employment. The following section describes the distribution of the questionnaire based on a modified version of Dillman's (2000) *Tailored Design Method*, using multiple points of contact combined with a foot-in-the door approach. Included in this section is a brief description of the pilot test of the study questionnaire.

---

[13]   In some instances, the nurses worked equal amounts of time on more than one unit (e.g., hired by one cost centre for logistical purposes but worked on another unit(s) on a regular basis). Each situation was considered on an individual basis to determine the appropriate nursing unit to determine response rates and for data analysis.

4.2.1 Modified Tailored Design Method

Because the participant completion rate per nursing unit was critical to the success of the project (e.g., calculating actual diversity), and given the nature of the work schedules of the nurses, various strategies were used to optimize the response rates and to address the various reasons for nonresponse (Dillman, 2000). Some of the reasons why people do not respond to questionnaires can be explained by social exchange theory, which forms the basis of the *Tailored Design Method* (TDM) (Dillman, 2000). Dillman proposed that participants are motivated by considering the rewards of responding to a survey with the costs associated with participating. Embedded in the TDM are attempts to provide rewards by offering appreciation, providing positive regard, and having a questionnaire that captures the interest of potential participants. The costs of participating in the survey can be reduced by making the task appear manageable, preventing embarrassment, and eliminating any direct monetary expenses (Dillman, 2000). The element of trust between the participant and the researcher is another key aspect of the TDM. Strategies such as establishing legitimacy by identifying with a known organization and providing an advanced token of appreciation are ways that trust can be achieved (Dillman, 2000).

Although attending to issues of reward, cost, and trust can facilitate the achievement of response rates ranging from 58% to 92%, researchers must also tend to the detailed organization of survey administration to ensure that questionnaires and follow-ups are received in a timely and accurate manner (Dillman, 2000). To achieve this, Dillman (2000) recommended five necessary elements for achieving high response rates: (a) respondent-friendly questionnaires, (b) a minimum of five points of contact during a 3-week period (i.e., a prenotification letter, questionnaire package, thank-you reminder postcard, replacement questionnaire package, and a final reminder using special procedures such as certified mail), (c) return envelopes with paid postage, (d) personalized correspondence, and (e) prepaid tokens of appreciation. These five elements are the structural features of the TDM that facilitate potential participants' understandings of what is being requested, and provide several opportunities to motivate participants to respond. Past survey research using the TDM has reported an average response rate of 74% (Dillman, 2000).

4.2.2   Application of the Tailored Design Method

Once the hospitals were selected, members of the leadership groups (i.e., hospital directors, program directors, and nursing unit managers) were interviewed to determine the most feasible methods of sampling the nursing work units and of distributing the self-administered questionnaires (e.g., in-person during departmental meetings, mailout through human resources, or via e-mail). To arrange convenient times for the data collection and to modify the distribution process to accommodate each nursing unit, I liaised with the managers of each nursing unit on a regular basis. For various reasons, it was determined that the most feasible method of distributing the data collection materials was to affix the materials to the nurses' paycheque statements that were distributed through the human resources department every two weeks and delivered to nurses on their respective nursing units (e.g., use of staff mailboxes). The leadership groups believed that it was important to use both electronic and paper modes of communication as means of contacting all the eligible nurses.[14]

Numerous strategies from the TDM were used to incorporate the principles of reward, cost, and trust. To schedule the distribution of the research materials with the organizations' payroll systems, a minimum of six points of contact with the potential study participants were completed during a 7- to 11-week period (see Figure 4.2). At both sites, the start date for distribution of the research materials was staggered over two weeks; four units began the study at the same time and then, two weeks later, the remaining nursing units received their research materials. All participants were assigned the same end date to return their completed questionnaires; they had a minimum of 50 days to a maximum of 78 days to complete the survey (on average, the nurses had 64 days to complete the questionnaire).

---

[14]   Most of the study correspondence was distributed by e-mail in addition to paper and online. A web-based version of the questionnaire was provided. All electronic correspondence was sent by the nursing unit managers, and an online survey management company, Zoomerang, was used.

Figure 4.2   Data Collection Process

Pre-notification letter

Posters on units

Thank-you reminder letter

Replacement questionnaire package

• Same content as initial package
• Received by non-respondents

Final thank-you (e-mail) and $2 gift certificate

Contact #1, Wk 0 | Contact #2, Wk 2 | Contact #3, Wk 4 | Contact #4, Wk 6 | Contact #5, Wk 8 | Contact #6, Wk 10 | Wk 11 and beyond

Questionnaire package

• Cover letter
• Additional consent information
• Online survey instructions
• Questionnaire
• Self-addressed return envelope with paid postage
• Draw entry form

Reminder for early bird draw

Site A
Final Reminder (non-respondents)

Site B
Final reminder and thank-you letter

Researcher visited units, attended meetings, and distributed gift certificates.

For each nursing unit, six in-hospital mailings occurred. A one page prenotification letter enclosed in a personalized envelope was the first piece of correspondence mailed two weeks before the questionnaire distribution. This preletter introduced the study, emphasized the importance of the survey for the health region, and indicated that a questionnaire would arrive in two weeks' time and that the nurse's response would be greatly appreciated. An influential person within the organization (i.e., the hospital director at Site A and program directors at Site B) and representatives of the nurses' union (i.e., the president of the British Columbia Nurses' Union and the secretary-business manager of the Hospital Employees' Union) signed the introductory letter. During the distribution of the introductory letter, study posters were placed in central locations on the nursing units. When appropriate to do so, staff meetings were attended as another way of introducing the study, answering questions, and inviting staff participation.

Two weeks following the prenotification letter, the questionnaire package was mailed to all eligible participants. Each questionnaire package included a cover letter explaining the study, additional consent information, directions about how to access the online survey, a paper version of the questionnaire with instructions for its return, a prize draw entry form and envelope, and a stamped, self-addressed envelope for return of the completed questionnaire to the School of Nursing, University of British Columbia. The cover letter was written on agency letterhead and conveyed important information about the study. To promote candid responses, the nurses were assured of complete confidentiality and anonymity. The 15-page questionnaire was presented in a respondent-friendly format that could be completed in 20 to 30 minutes. At the same time that the questionnaire was distributed, each nursing unit received a file containing extra questionnaire packages and a draw box for prize draw entry forms. As well, two formal meeting times were established for each nursing unit to launch the study and to offer food, as a way of showing positive regard.

With follow-up contacts, Dillman (2000) indicated that response rates will usually be 20 to 40 percentage points higher than those normally attained. Two weeks following the distribution of the questionnaire, a personalized thank-you and reminder letter was distributed to all nurses in the target sample. In this letter, people who had already returned their questionnaire were thanked and those who had not were asked to do so as soon as possible. Two weeks following this letter, a flyer reminding the nurses of the early bird prize deadline was distributed

to all nonrespondents. Because of the staggered start dates, nurses in the second group at Site A did not receive a paper version of the flyer; instead, it was e-mailed and conveniently posted on the nursing units. As the prize draw entry forms were received, gift certificates were distributed to respondents on the nursing units.

Six weeks after the distribution of the questionnaire, a personalized replacement questionnaire package was mailed to all nonrespondents. This package contained the same study materials included in the initial distribution with minor modifications made to the cover letter. Two weeks following the replacement questionnaire package, a final letter with a reminder of the final deadline was mailed. At Site A, this letter was followed with e-mail correspondence thanking all the participants. At Site B, this letter was written as a thank-you reminder letter and sent to all nurses in the sample. Following the final deadline and receipt of all survey packages, outstanding gift certificates were mailed to nurses who completed and returned the questionnaire. The entry forms were used as a means of acquiring mailing addresses for the gift certificate.

This distribution process was used in combination with a foot-in-the-door approach (Dillman, 2000). This approach involved a brief conversation with the nurses inviting them to participate and showing the contents of the questionnaire package, which was meant to increase the perceived salience of the research, to establish a sense of value in them participating, and to increase the likelihood of storing the request in long-term memory (Dillman, 2000). Frequent visits (one to three times a week for the duration of the study) were conducted on each nursing unit during the data collection period to inform the potential participants of the study, to answer their questions, and to encourage their participation. Approximately 80% to 95% of the nurses, on each nursing unit, were approached in person.

The nurses that completed and returned the questionnaire were eligible for several small individual incentives, including an early bird draw prize (one per nursing unit), a bonus prize at the end of the data collection period, and a $2 gift certificate from a local coffee supplier. A grand prize draw ($360 or the equivalent of the nursing registration fee with the provincial regulatory body) was also awarded to one individual. Finally, a group reward was given to the nursing unit with the greatest proportion of nurses participating. Nurses could enter their name for the incentives by completing a detachable random draw entry card. The participants were

instructed to put their name and contact information on the entry form and to place the card in a smaller sealed envelope. Participants could either return the envelope to the researcher by placing the envelope in a draw box conveniently located on the nursing unit or they could place it in the larger envelope with the completed questionnaire to be mailed to the School of Nursing.

4.2.3   Pretesting

Pretesting was conducted to evaluate the study questionnaire (Bourgque & Fielder, 2003; Dillman, 2000). Some of the researcher's colleagues who were not involved with its development reviewed the study questionnaire. Feedback was provided on response categories for scalar questions, clarity of instructions, and questionnaire aesthetics. Potential respondents at a hospital site not involved in the study were asked to respond to the questionnaire to obtain an understanding of how each question was interpreted and whether the intent of each question was realized. Information about the length of time taken to complete the questionnaire was obtained. Finally, feedback was provided regarding the questions that were likely to be of most interest to the participants, the quality of the information presented in the cover letter and poster, and the clarity of the questionnaire instructions. Planned data collection protocols were not tested; however, they were discussed at length with the unit managers and program directors to ensure their success.

4.3   Operationalization of Study Constructs

The 15-page study questionnaire included numerous self-report items about the constructs of interest: relational diversity (the derived exogenous variables), interpersonal conflict (the mediator variables), and burnout (the endogenous variables). A thorough review of instruments used to measure the constructs was carried out to determine their psychometric properties and feasibility of use. Table 4.3 provides an overview of the study constructs used in the structural equation modelling component of the analysis, the associated instruments or items, and the model in which the study constructs were included. The final questionnaire consisted of 138 self-report items with Likert-type responses (see Appendix B).

Table 4.3　　List of Scales/Items in Final Study Questionnaire

Study constructs	Observed indicator (Questionnaire subscale and items)
EXOGENOUS VARIABLES – RELATIONAL DIVERSITY	
ACTUAL AGE DIVERSITY	D-score calculated based on responses to the question: In what year were you born?
ACTUAL EDUCATIONAL DIVERSITY	D-score calculated based on responses to the question: What is your highest educational qualification in nursing?
ACTUAL ETHNIC/RACIAL DIVERSITY	D-score calculated based on responses to the question: Are you . . . [list of responses] (for examples see Appendix B)
ACTUAL WORK VALUES DIVERSITY	D-score calculated based on summed responses to the questions below.
Contemporary Work Values Scale	I expect work to be a meaningful and fulfilling part of my life. When working, I have high expectations of receiving both intrinsic and extrinsic rewards. Work provides a channel for expressing myself and my opinions. I need to be listened to by my superiors; work should be a two-way communication process. Work is worth doing only when it makes a meaningful contribution to society. I would like to work less in order to have more free time for personal interests. My input should be considered before decisions are made that affect my work situation. I desire work that provides opportunities for personal growth and allows me to "feel good inside." I want to have control over my work assignments and how work tasks are done. Work has to be meaningful for me to do it well. It is important to me that my job provides opportunities to strengthen my abilities and talents. A worker should have some direct "say" in nursing unit operations. Being held in high regard by others is important to me. I am very concerned that I receive personal satisfaction from my work. Responsibility for high-quality patient care should be placed upon workers and not solely on managers. Work provides many opportunities for "personal growth" experiences. I enjoy work assignments that are challenging and require extensive use of thought processes. Only when it earns me self-respect is my work worthwhile. Work assignments should provide sufficient rewards for me; in other words, I would not accept just any job unless I have to. Work is beneficial in helping me to become a "whole" person. Work has value only because it is strictly a means to an end. I want more say over what will be assigned to me and how it is to be completed. I must be given a high degree of freedom to accomplish work in the best way possible.

Study constructs	Observed indicator (Questionnaire subscale and items)
	Work contributes to my understanding and development of my character and capabilities.
	Work should provide me with a high degree of self-satisfaction or self-fulfillment.
	I accept total responsibility for the successful completion of my work.
	I wish I could find interesting work.
	I want to be informed about the activities and plans of my nursing unit.
	I seek work experiences that help me expand and use my potential to the fullest extent possible.
	I would like variety in my work.
	Work provides individuals with an opportunity to "grow" and realize their full potential.
	I seek various emotional and psychological rewards from working in addition to my pay cheque.
	A person can effectively integrate work and other interests.
	Work should be an extension of one's lifestyle and not merely a means to obtain subsistence.
	A need exists for more openness and better communication in work relationships.
PERCEIVED AGE DIVERSITY	In my nursing unit, the other nurses are similar to me in terms of their age.
PERCEIVED EDUCATIONAL DIVERSITY	In my nursing unit, the other nurses are similar to me in terms of their educational background in nursing (e.g., diploma or degree).
PERCEIVED ETHNIC/RACIAL DIVERSITY	In my nursing unit, the other nurses are similar to me in terms of their ethnicity or culture.
PERCEIVED WORK VALUES DIVERSITY	In my nursing unit, the other nurses are similar to me in terms of their work ethic (values).
Perceived Work Values Diversity Scale	In my nursing unit, the other nurses are similar to me in terms of the principles that guide their work.
	In my nursing unit, the other nurses are similar to me in terms of their attitudes about work.
	In my nursing unit, the other nurses are similar to me in terms of their beliefs about work.

MEDIATOR VARIABLES – INTERPERSONAL CONFLICT

RELATIONSHIP CONFLICT	
Intragroup Conflict Relationship Subscale	How much friction is there among members in your nursing unit?
	How much are personality clashes evident among members in your nursing unit?
	How much tension is there among members in your nursing unit?
	How much rivalry is there among members in your nursing unit?
	How much anger is there among members in your nursing unit?
Individual Conflict Relationship Subscale	How much friction is there between you and your coworkers?
	How much are personality clashes evident between you and your coworkers?
	How much tension is there between you and your coworkers?
	How often do you get angry with your coworkers?

Study constructs	Observed indicator (Questionnaire subscale and items)
TASK CONFLICT	
Intragroup Conflict Task Subscale	How often do members in your nursing unit disagree about the work being done?
	How frequently are there conflicts about work ideas among members in your nursing unit?
	How much conflict about the work you do is there among members in your nursing unit?
	To what extent are there differences of opinion among members in your nursing unit?
Individual Conflict Task Subscale	To what degree do you and your coworkers have diverging opinions about the work being done?
	How much conflict about work ideas exists between you and your coworkers?
	How often do you and your coworkers disagree about what things should be done?
	To what extent do you and your coworkers have disagreements about work?
PROCESS CONFLICT	
Intragroup Conflict Process Subscale	How often do members in your nursing unit disagree about who should do what?
	How frequently do members in your nursing unit disagree about the way to complete a task?
	How much conflict is there about delegation of tasks among members in your nursing unit?
Individual Conflict Process Subscale	How often do you disagree with your coworkers about who should do what?
	How frequently do you disagree with your coworkers about the way to complete a task?
	How much conflict do you have with your coworkers about delegation of tasks on your nursing unit?
ENDOGENOUS VARIABLES – BURNOUT	
Maslach Burnout Inventory[15]	
Emotional Exhaustion	Drained
	Used up
	Fatigued
	Work strain
	Burned out
	Frustrated
	Work hard
	People stressful
	End of rope
Depersonalization	Impersonal
	Callous
	Hardening
	Not care
	Patients blamed

[15] Reproduction of items was prohibited without the publisher's written consent.

Study constructs	Observed indicator (Questionnaire subscale and items)
Personal Accomplishment	Understand patients
	Deal with problems
	Positively influence
	Energetic
	Create atmosphere
	Exhilarated
	Accomplish
	Deal calmly
Cynicism	Less interested
	Less enthusiastic
	Not be bothered
	Cynical
	Doubt

4.3.1 Exogenous Variable: Relational Diversity

Currently, there are no established instruments to measure relational diversity in nursing; as a result, I drew heavily from researchers in the field of organizational behaviour. Two approaches were used to operationalize the relational diversity construct (Riordan, 2000). First, the *Euclidean distance score approach* was used to measure relational diversity. The second approach used was the *perceptual approach*, which measures how different individuals think they are from others in their workgroup (or similar) on specific attributes (Riordan, 2000). The four relational diversity attributes of interest for this study were: age, education, ethnicity/race, and work values. Each attribute was treated as a distinct theoretical concept and analyzed separately.

4.3.1.1 *Actual* Approach to the Measurement of Relational Diversity

The most common measure of examining relational diversity, from an objective standpoint, is the *Euclidean distance measure* (D-score). This approach provides a measure of an individual's "*actual*" difference from (or similarity to) other workgroup members. Relational diversity measured with the D-score approach is usually referred to as *actual relational diversity* (herein referred to as *actual* diversity). Computationally, the D-score "is the square root of the average squared distance of an individual relative to all other members of the group" (Liao, Joshi, & Chuang, 2004, p. 982) (see Equation 4.1).

Equation 4.1 Euclidean Distance Measure

$$\left[\frac{1}{n-1} \sum_{j=1}^{n} (S_i - S_j)^2 \right]^{\frac{1}{2}}$$

(Tsui, Egan, & O'Reilly III, 1992)

The measure takes "the square root of the summed squared differences between an individual S_i's value on a specific demographic variable and the value on the same variable for every other individual S_j in the sample for the work unit, divided by the total number of respondents in the work unit" (Tsui et al., 1992, p. 562) minus the focal individual (*n - 1*) (Tsui & Gutek, 1999).

Using the D-score to measure relational diversity at the individual level of analysis allows for consideration of the focal individual's score on a specific attribute and all other workgroup members' scores on the same attribute (Tsui et al., 1992). For the purposes of this study, all D-scores were scaled in such a way that larger values refer to greater individual diversity (difference) on a specific attribute (e.g., focal individuals with higher age D-scores are more different from others within the workgroup than those with lower age D-scores) (Tsui et al., 1992; Wagner, Pfeffer, & O'Reilly III, 1984). The D-score has been used reliably by other researchers; however, it is not without several shortcomings: (a) fails to account for any effects beyond the linear plane (e.g., quadratic functions), (b) measures only magnitude, rather than directional effects, (c) treats nominal classifications as if they were interval data (e.g., each ethnic classification was thought to be equally distant from each other), and (d) ignores the possibly that the separate components of the $S_i - S_j$ score (i.e., focal individual's score for a given attribute and all other members' scores on the same attribute) may disproportionately contribute to the prediction of individual outcomes (Clark & Ostroff, 2003; Edwards, 1994; Riordan, 1997, 2000; Wagner et al., 1984). Several approaches for operationalizing relational diversity (e.g., polynomial regression) have been described thoroughly elsewhere (Edwards, 1994; Edwards & Parry, 1993; Riordan & Holliday Wayne, 2008).

The questionnaire included several questions (see Table 4.3) about the four attributes of interest (age, education, ethnicity/race, and work values), which were used to calculate D-scores for each individual. Each diversity variable was treated as a distinct theoretical concept.

80

Age diversity simply refers to differences in years of age between an individual and other workgroup members. To measure their age, the respondents were asked to report their year of birth which was subtracted from 2007. As an attribute that is not easily observable, education reflects an individual's cognitive ability, knowledge, training, and skill (Liao, Chuang, & Joshi, 2008). In the current study, *educational diversity* refers to differences in levels of nursing education, namely diploma or baccalaureate degree preparation, between an individual and other workgroup members. In British Columbia, both registered nurses and licensed practical nurses may have earned a diploma before entering practice. Some registered nurses may initially graduate with a diploma to enter practice as a registered psychiatric nurse before earning their credentials as a registered nurse. No baccalaureate degree education exists for licensed practical nurses. Education was assessed through responses to the question, "*What is your highest educational qualification in nursing?*"

Ethnic/racial diversity refers to individual differences relative to other workgroup members based on ethnicity or "race," a multidimensional and dynamic construct that is in a constant state of flux (Statistics Canada, 2003). Ethnicity is thus not a fixed label, but is socially constructed and refers to a sense of belonging and group identity (Gerrish, 2000). Some common aspects comprising ethnicity are race, origin or ancestry, identity, language, and religion; however, other more subtle dimensions such as culture, the arts, customs, and beliefs may also be viewed as informing one's sense of ethnicity (Statistics Canada, 2003). Ethnicity/race in the current study is viewed as a multidimensional and dynamic construct, referring to the sharing of common and subtle features (e.g., culture (which includes shared origin, shared genetic characteristics, and shared language), religion, cultural traditions, and skin colour) (Ford & Kelly, 2005). Ethnicity/race was measured by asking the participants how they self identified ("*Are you . . .*" [a list of ethnic or cultural groups was provided]).

Work values diversity refers to differences in a constellation of attitudes and beliefs pertaining toward work-related activity in general and the work environment (McNeese-Smith & Crook, 2003; Miller, Woehr, & Hudspeth, 2002; Smola & Sutton, 2002). For the current study, the following definition was adopted: "Work values are the evaluative standards relating to work or the work environment by which individuals discern what is 'right' or assess the importance of

preferences" (Dose, 1997 as cited by Smola & Sutton, 2002, p. 366). Work values are often viewed as an attitudinal construct that determines an individual's personal norms, preferences or choices, and behaviour related to work and the work environment (Verplanken, 2004); thus, the work values held by individuals determine their work attitudes, work standards, and work ethic (e.g., preferences and behaviour). Such values may also influence what members of a workgroup think the group's task, goal, and mission should be (Jehn, Northcraft, & Neale, 1999).

Work values diversity was measured with the 35-item *Contemporary Work Values* (CWV) *Scale* (Wayne, 1989) (see Table 4.3). According to Wayne, work values refer to "the usefulness, importance, or general worth that a person assigns to some behaviour or conception of work (e.g., physical effort and length of time on task/job) and nonwork activities (e.g., leisure, benefits, and rewards)" (p. 793). Originally, this instrument was developed to identify a collection of "newer" work values that influence a person's attitudes or orientation toward work in general, as opposed to a specific job. These new, or contemporary, work values differ from traditional work values (e.g., the Protestant Ethic) in that they include a collection of principles of conduct and values that place less emphasis on dependence and commitment to one's work, obedience, and respect for authority combined with a desire for more work-life balance (Wayne, 1989). An in-depth review of the literature about work values was undertaken by Wayne (1989) to develop questions pertaining to the Protestant Ethic and contemporary work values. Before Wayne undertook pilot testing, the questions were reviewed by several expert panels to establish content validity and to assess the readability of the instrument. Based on the findings from the pilot testing, the final instrument consisted of 111 questions, of which 35 captured contemporary work values. This instrument uses a 4-point Likert scale: *strongly agree* (4), *agree* (3), *disagree* (2), and *strongly disagree* (1). The 111-item questionnaire was then tested on a sample of 688 individuals (Wayne, 1989). The 35-item CWV scale achieved a Cronbach's alpha of 0.91 and test-retest reliability of 0.74. Also, paired t-test, item analysis, and discriminate function analyses were conducted indicating that the CWV instrument distinctly measures one particular type of work values. Higher item and total scores reflect a stronger contemporary work values orientation (Wayne, 1989). Further details about the reliability and validity of this instrument, and its development, are described in detail by Wayne (1989). In the current study, the items were summed to create a total score. The average total score, which takes into consideration the

number of items answered by each respondent (i.e., some respondents had missing data), was used to calculate the D-score for participants to determine actual work values diversity.

The D-score has been computed reliably for observed variables that are *categorical* and *continuous* (Liao et al., 2004; Riordan, 1997). In the current study, age and work values were treated as continuous variables. For example, assume Person A (focal individual) is 51 years old and works in a group of four other individuals (age in years for Person B = 36, C = 51, D = 31, and E = 37). The age difference between Person A (focal individual) and Person B, who is 36 years old, is 15. The squared distance between A and B is 225. The age difference and subsequent squared distances for the remaining members relative to the focal individual is as follows: C = -1 (1), D = 20 (400), and E = 14 (196). The squared distances for all members within the group are summed (225 + 1 + 400 + 196 = 822) and then divided by the total number of coworkers in the group minus the focal individual (5 - 1) (822/4 = 205.5). The square root of 205.5 = 14.3, which indicates the focal individual's age relative to other members of the workgroup (example adapted from Liao et al., 2004). The range of scores for the continuous variables varied depending on the degree of difference.

In the current study, the ethnicity/race and highest level of nursing education variables were treated as categorical variables for the calculation of the D-scores. The scores were computed by comparing the focal individual's ethnicity/race, for example, with all the other ethnic/race backgrounds represented within the workgroup (Tsui et al., 1992). If two workgroup members belonged to the same ethnicity/race the value for $S_i - S_j$ was assigned a score of 0. A score of 1 was assigned to focal individuals if they belonged to a different ethnicity/race. For example, a "*white*" individual (focal individual) in a workgroup with one other "*white*" member and three others representing different ethnic/race groups (e.g., Chinese, Black, and South Asian), is assigned a score of 0 for being the same as the other "*white*" member and three scores of 1 for being different from each of the three workgroup members that are not "*white*" (Tsui et al., 1992). Next, the squared distance is calculated for each focal individual relative to all members in the group and then summed. In this example, the sum squared distances equal 3. Next, these squared distances are divided by *n-1*, which in this case is 3/4 = 0.75, and then the square root of the result is calculated. The square root of the final number indicates the focal individual's ethnic/racial diversity relative to the workgroup (Liao et al., 2004). The focal

83

individual, who identified as "*white*," receives a D-score of 0.87. The three individuals whose ethnicity/race is not "*white*" receives a D-score of 1.00, which would indicate that they are the sole members of an ethnic/race group (Tsui et al., 1992). The D-scores for categorical variables range from 0 to 1, with higher scores indicating greater differences between an individual and other workgroup members on a specific attribute (Riordan & Shore, 1997; Tsui et al., 1992).

4.3.1.2 *Perceptual* **Approach to the Measurement of Relational Diversity**

The perceptual approach to measuring relational diversity represents individuals' perceptions of how different they are from (or similar to) other workgroup members (Riordan, 2000). Relational diversity, measured from the *perceptual approach*, is referred to as *perceived* diversity. Based on the work of several researchers (Jehn et al., 1999; Kirchmeyer, 1995; Riordan, 1997), the participants were asked to indicate how similar they were to other members of their workgroups for each diversity attribute. One question was used to measure their *perceived* age, education, and ethnic/racial diversity (see Table 4.3). For the work values attribute, four items asked the individuals how similar they were to others in their workgroup regarding their work-related values, beliefs, and goals (*Perceived Work Values Diversity Scale*) (Cronbach's alpha = 0.85) (Jehn et al., 1999). A 6-point Likert scale with anchors at 1 (*not at all similar*) to 6 (*very similar*) was used. Explicit instructions were given to the participants to make comparisons between themselves and their nursing coworkers that worked regularly on their immediate nursing unit. Items were reverse scored so that higher scores reflected greater individual diversity on a specific attribute.

4.3.2 **Mediating Variable: Interpersonal Conflict**

Based on Barki and Hartwick's (2004) conceptualization, interpersonal conflict was defined for my purpose as a "phenomenon that occurs between independent parties as they experience negative emotional reactions to *perceived* disagreements and interference with the attainment of their goals" (Barki & Hartwick, 2004, p. 234). In the current study, the presence and intensity of interpersonal conflict is viewed as individuals' perceptions of conflict, formed by their perceptions of disagreement, negative emotion, and interference present in the situation (Barki & Hartwick, 2004). In the field of organizational behaviour, there are two common approaches to measuring relationship, task, and process conflict: (a) the individual's perceptions

of conflict within the workgroup (Jehn, 1994; Jehn, Chadwick, & Thatcher, 1997; Jehn & Chatman, 2000; Pelled, 1996b) and (b) the individual's reported involvement in conflict (Hobman, Bordia, & Gallois, 2003; Pelled, Xin, & Weiss, 2001). These measures were based on the original work of Rahim (1983) and were modified to suit the context of this study. For both scales a 5-point Likert scale with anchors at 1 (*none*) and 5 (*a lot*) were used. Higher scores indicated greater amounts of conflict.

To measure individuals' perceptions of conflict within the workgroup (herein referred to as the *Intragroup Conflict Scale*), the respondents were asked 12 questions about the extent of disagreement evident among the members of their primary unit of employment (see Table 4.3). To answer the conflict items, the respondents were instructed to refer to all nurses (RNs and LPNs) that regularly worked on their particular unit. The items were based on the work of several researchers (Jehn, 1994; Jehn et al., 1997; Jehn & Chatman, 2000; Pelled, 1996b), which were modified slightly to be consistent with the other employed conflict scale. The number of items used to measure *relationship*, *task*, and *process* conflict were, respectively, 5, 4, and 3 items. Reported Cronbrach's alpha for the scales of relationship conflict (range from 0.81 to 0.94), task conflict (range from 0.78 to 0.94), and process conflict (range from 0.78 to 0.93) were within acceptable range (Jehn, 1995; Jehn, Chadwick, & Thatcher, 1997; Jehn & Mannix, 2001; Jehn et al., 1999; Pelled, Eisenhardt, & Xin, 1999).

To measure individuals' involvement in conflict (herein referred to as the *Individual Conflict Scale*), the respondents were asked 11 questions about the degree ("how much") of conflict they had with their nursing coworkers on their primary unit of employment (see Table 4.3). To answer the conflict items, the respondents were instructed to refer to all nurses (RNs and LPNs) that regularly worked on their particular unit. The Individual Conflict Scale consisted of four items to measure *relationship* conflict, four items to measure *task* conflict, and three items to measure *process* conflict. The relationship and task items were based on the work of Pelled et al. (2001) and modified to parallel the Intragroup Conflict Scale. In consideration of the items used to measure intragroup process conflict, individual conflict process items were developed by the researcher. Reported reliability coefficients for the relationship ($\alpha = 0.79$) and task ($\alpha = 0.79$) subscales (Pelled et al., 2001) were slightly lower than the subscales measuring intragroup conflict.

In reference to Barki and Hartwick's (2004) typology of interpersonal conflict, the relationship conflict items for both scales assess negative emotions resulting from disagreements attributed to nonwork-related preferences, whereas task and process conflict measure disagreements about work. A 5-point Likert response format, anchored by 1 (*none*) and 5 (*a lot*), was used for all subscales; a higher value represents a greater amount of conflict. Although the conflict variables were highly correlated, discriminant validity testing indicated that each subscale measured a distinct aspect of conflict (Hobman et al., 2003; Jehn & Chatman, 2000; Jehn et al., 1999). Confirmatory factor analysis with oblique rotation supported a three-factor structure (Jehn, 1995; Jehn & Mannix, 2001); however, because reliability has not been established for the nursing population, a confirmatory factor analysis was completed as part of the current study (see Chapter 5).

4.3.3   Endogenous Variable: Burnout

The predominant measure used by researchers to operationalize the construct of burnout has been the original *Maslach Burnout Inventory* (MBI) (see Table 4.3). The MBI was originally designed to assess burnout among human service providers (e.g., nurses) who had direct relationships with clients, and has since been revised to measure burnout across occupations (e.g., nonhuman service fields and educational settings) and nationalities (Maslach, Jackson, & Leiter, 1996). It is important to note that the original MBI (1986) is equivalent to the MBI-Human Services Survey (HSS) sometimes referred to in the measurement literature. This study used the HSS scale, which consists of three subscales, to assess the frequency of emotional exhaustion (EE), depersonalization (DP), and a sense of diminished personal accomplishment (PA), along with the five cynicism (CY) items from the MBI-General Survey (GS). The Likert responses for included questions ranged from 0 (*never*) to 6 (*every day*). Examples of the burnout items for each subscale are:[16] EE – "*I feel like I'm at the end of my rope*," DP – "*I feel I treat some recipients as if they were impersonal objects*," PA – "*I feel I'm positively influencing other people's lives through my work*," and CY – "*I doubt the significance of my work*." Rather than

---

[16]   Reproduced with special permission of the publisher, CPP, Inc., Mountain View, CA 94043 from Maslach Burnout Inventory – Human Services Survey by Christina Maslach and Susan E. Jackson. Copyright 1986 by CPP, Inc. All rights reserved. Further reproduction was prohibited without the publisher's written consent, which was not sought.

measuring the presence or absence of burnout, the levels of burnout experienced fall on a continuum. Individuals who experience higher scores in EE, DP, and CY and lower scores on PA, experience a higher degree of burnout. The scores for each subscale are norm referenced (see Table 4.4) and are typically considered separately; therefore, a composite score is not usually calculated (Maslach et al., 1996). To reflect the multidimensional structure of burnout (which evidence supports as containing conceptually distinct components), and to gain a more precise understanding of the relationships among the variables and the particular components of burnout (Cordes & Dougherty, 1993), each component was measured, analyzed, and reported separately. Instrument reliability and validity are well established (Maslach et al., 1996). The license to use the MBI and the sample items was obtained from Consulting Psychologists Press, Inc.

Table 4.4   Normative Scores for the Maslach Burnout Inventory Subscales

MBI subscales	Mean	SD	Range of experienced burnout		
			Low (lower third)	Average (middle third)	High (upper third)
EE	22.19	9.53	18 or less	19-26	27 or greater
DP	7.12	5.22	5 or less	6-9	10 or greater
PA	36.53	7.34	40 or greater	39-34	33 or less
CY	1.80	1.24	1.00 or less	1.01-2.19	2.20 or greater

Note. The EE, DP, and PA scores are based on a sample of medical workers (physicians and nurses), $N = 1,104$. The range of CY scores are based on a North American sample ($N = 3,727$), whereas the sample mean and SD are based on a Canadian sample of nurses, $N = 1,257$ (Maslach et al., 1996).

4.3.3.1   Reliability

The MBI has demonstrated an adequate degree of internal consistency; inter-item correlation values for the 22-item measure were within the recommended range of 0.30 and 0.70. The reported Cronbrach's alpha for each subscale were: EE = 0.90, DP = 0.71, CY = 0.84, and PA = 0.71 (Maslach et al., 1996; Salanova et al., 2005). The test-retest reliability coefficients for the subscales range from 0.82 to 0.54 at one month to one year intervals, with the emotional exhaustion subscale demonstrating the highest degree of consistency (Maslach et al., 1996).

4.3.3.2   Content Validity

In the 1970's, findings from exploratory research were used to formulate ideas about the attitudes and feelings that distinguished individuals experiencing burnout because of their

working with people. The initial version of the MBI-HSS included 47 items to assess both the intensity and frequency of each component of burnout (Maslach et al., 1996). This version was administered to a sample of human service providers (e.g., police officers, nurses, agency administrators, teachers, counsellors, social workers, probation officers, mental health workers, physicians, psychologists and psychiatrists, attorneys, and others). Following several exploratory and confirmatory factor analyses, the measure now consists of 22 items measuring the frequency of burnout across a wide range of occupations (e.g., MBI-GS for nonhuman service providers, the MBI-HSS for professionals in the human services, and the MBI-Educators Survey for those in the teaching profession) (Maslach et al., 1996).

4.3.3.3   Construct Validity

Previous research regarding the MBI-HSS has demonstrated acceptable construct and predictive validity (Maslach et al., 1996). This measure originally consisted of 47 items, and, through a series of studies using factor analysis, was pared down to the current 22-item version. The populations sampled represented a variety of health and service occupations dealing directly with people. Both men and women were sampled. Other demographics of the samples were not specified. A factor analysis on the 22 items of the MBI-HSS, using principal factoring and orthogonal rotation, produced a three-component structure (i.e., EE, DP, and PA) (Maslach et al., 1996). Studies have consistently found cross-loadings for item 12 ("*energetic*") and item 16 ("*people stressful*"); nonetheless, these items have been retained, and the final three-component factor structure consists of nine items in the EE subscale, five items in the DP subscale, and eight items in the PA subscale (Maslach et al., 1996; Schaufeli & Van Dierendonck, 1993). The HSS-GS originated as a 28-item version and was reduced to 16 items through a series of regression analyses and factor analyses. Confirmatory factor analyses have resulted in a three-factor structure consisting of five items each for EE and CY, and six items for professional efficacy (Maslach et al., 1996).

The MBI-HSS measuring the three aspects of burnout has been used in numerous nursing studies (Ilhan, Durukan, Taner, Maral, & Bumin, 2008; Laschinger & Leiter, 2006; Sahraian, Fazelzadeh, Mehdizadeh, & Toobaee, 2008). In many instances, the emotional exhaustion subscale has been used as the most prominent and robust measure of burnout among

nurses (Cho et al., 2006; Janssen, Jonge, & Bakker, 1999; Lang, 2007; Laschinger, Shamian, & Thomson, 2001; Stordeur, D'Hoore, & Vandenberghe, 2001). Although the authors of the burnout inventory report that confirmatory factor analysis confirmed a three-factor model of burnout (Maslach et al., 1996; Schaufeli & Van Dierendonck, 1993), others have demonstrated mixed results on the fit of this measurement structure (Beckstead, 2002; Lang, 2007; Salanova et al., 2005). Beckstead (2002) found that the hypothesized three-factor model, allowing items to load on only one latent factor, did not fit the observed data, and subsequently recommended four different measurement models be tested in future structural equation modelling studies using the MBI. In an analysis of the burnout inventory with all four subscales (i.e., EE, DP, CY, and PA), cynicism and depersonalization were both found to be distinct manifestations of mental distancing; consequently, Salanova et al. (2005) recommended including cynicism in addition to the three traditional subscales when studying human services.

4.3.3.4   Convergent and Discriminant Validity

Maslach et al. (1996) reported substantial evidence demonstrating the convergent validity of the MBI-HSS. Further evidence has been obtained to distinguish the burnout inventory from other psychological constructs that might be confounded with burnout (Maslach et al., 1996; Schaufeli & Van Dierendonck, 1993). A negative correlation between the subscales of the MBI-HSS and job satisfaction (ranging from 0.40 to 0.52) has been documented (Beckstead, 2002; Maslach et al., 1996). Burnout subscales for the HHS and GS have been differentiated from anxiety, depression, mental and physical strain, organizational commitment, job involvement, and occupational stress (Cordes & Dougherty, 1993; Maslach et al., 1996). Correlations between the MBI and the Crowne-Marlowe Social Desirability Scale were reported as not statistically significant (Maslach et al., 1996).

4.4   Data Analysis Procedures

This section provides an overview of the data analysis procedures carried out to test the direct and mediating relationships between the exogenous variables (the relational diversity variables), the mediator variables (intragroup conflict and individual conflict), and the endogenous variables (emotional exhaustion, depersonalization, cynicism, and diminished personal accomplishment) while controlling for measurement error. Processes followed for data

screening and the handling of missing data are described. Next, the details of a two-step approach taken to conduct the statistical analysis of the data using structural equation modelling (SEM) are provided. This approach uses confirmatory factor analysis (CFA) to test and establish the validity of the measurement model before testing the structural model (Schumacker & Lomax, 2004). Included is a description of the estimation used for modelling with ordered categorical (ordinal) data, the criteria used for evaluating model fit, the process applied for model respecification, and the statistical method employed to determine the relative importance of the exogenous variables (the Pratt Index) (Thomas, Hughes, & Zumbo, 1998). Last, the procedures undertaken to test the mediation models are explained. The data analyses were conducted using the SPSS 12.0 for Windows and M*plus* version 5.1 software programs. For all statistical procedures, the level of significance was set at a minimum of $p = 0.05$ and corresponding 95% confidence intervals.

4.4.1 Data Preparation and Screening

Before any data analysis was undertaken the raw data were screened for incorrect responses, data entry errors, or missing responses. Using SPSS 12.0, the distributions of the demographic and study variables were examined by using frequency and simple cross-tabulations. The chi-squared statistic was used to examine differences in the employment and demographic characteristics of the Site A and Site B respondents. Differences between responses from Site A and Site B respondents for the study variables were explored through use of the Mann Whitney U test.[17] Assumptions for multivariate analysis (i.e., normality, linearity, and homoscedasticity) were tested and the data were screened for the presence of outliers. Outliers in the data were examined to ensure that the data were entered correctly, that the outlier was a member of the intended sample population, and that the extreme values were within the acceptable range of the variables (Tabachnick & Fidell, 2007). If the outliers were from the intended sample population but represented more extreme values than a normal distribution for a given variable, they were retained for data analysis.

---

[17]   The appropriate statistic for bivariate analysis was determined by dividing the skewness value by the standard error of skewness. Values above or below ± 1.96 were considered significantly skewed ($p = 0.05$) and thus required a nonparametric test, such as the Mann Whitney U test (Munro, 2001).

4.4.2   Representation of Ordinal Variables

According to Finney and Distefano (2006), a general rule of agreement among researchers is that "when ordinal data are approximately normal and have a least five ordered categories that the ordered categorical data may be treated as if they were continuous without great distortion in the fit indices" (p. 276). At the same time, according to Brown (2006),

> The potential consequences of treating categorical variables as continuous variables in CFA are multifold, including that it can (1) produce attenuated estimates of the relationships (correlations) among indicators, especially when there are floor or ceiling effects; (2) lead to 'pseudofactors' that are artifacts of item difficulty or extremeness; and (3) produce incorrect test statistics and standards errors. (p. 387)

For the data analysis undertaken in this study, the distributions of the observed variables were examined to determine whether the variables should be treated as categorical or continuous. The data were collected using Likert scales with four to seven ordered categories. Based on the univariate analyses, most of the distributions of the study variables were skewed (range from -7.50 to 14.13) and displayed some kurtosis (ranged from -4.01 to 12.96). These values were not within an acceptable range for CFA with maximum likelihood estimation (e.g., skewness $< |2.0|$ and kurtosis $< |7.0|$) (Finney & DiStefano, 2006). Deviations from normality may lead to exaggerated chi-squared statistics and distorted fit indices, underestimated parameter estimates, and biased standards errors, which result in increased Type I error rates (Finney & DiStefano). Accordingly, the data were treated as severely non-normal and the indicators of all the observed variables were treated as ordered categorical (ordinal) for the analyses. For additional information about modelling with categorical data see Finney and DiStefano (2006) as well as Brown (2006).

4.4.3   Structural Equation Modelling

A multi-step process was used to determine the extent to which the hypothesized conceptual models (see Chapter 3) were actually consistent with the sample data (Schumacker & Lomax, 2004). The steps to SEM are an iterative process where problems or modifications determined at a later step may require modifications to earlier steps (Kline, 2005). The theoretical models were specified as structural models to ensure that the models were identified.

Next the data were collected, screened, and prepared for data analysis. Using the M*plus* 5.1 software program, data analysis was carried out using CFA, exploratory factor analysis (EFA), and SEM techniques (Kline, 2005). Factor analysis techniques (CFA and EFA) were used to assess the relationships between the observed variables (i.e., indicators or scale items) and the latent variables or factors (referred to as the measurement model) before assessing the structural model (Schumacker & Lomax, 2004). All factor analyses were conducted first to establish the measurement models before specifying and testing the structural model (Schumacker & Lomax, 2004). During the model estimation step the following events occurred: (a) the model fit was evaluated; (b) the parameter estimates were inspected for direction, magnitude, and significance; and (c) alternative models were considered. If necessary, the models were respecified and evaluated accordingly (Kline, 2005).

4.4.3.1   Exploratory Factor Analysis

In this study, EFA was used in instances when there was limited evidence available about the factor structure of an instrument (Munro, 2001). EFAs were conducted based on the guidelines and recommendations provided by Tabachnick and Fidell (2007) and others (Brown, 2006; Fabrigar, Wegener, MacCallum, & Strahan, 1999).

4.4.3.2   Confirmatory Factor Analysis

CFA was conducted to ensure the appropriate loading of the indicators on their corresponding concepts and to determine the validity of the study measures. The metric of the latent variables was set to be the same as the marker or reference indicator, which was the observed variable with the highest reported parameter estimate (Brown, 2006). In the case of multidimensional constructs (e.g., burnout), the factors were allowed to covary.

4.4.3.3   Method of Estimation

According to Brown (2006), when some of the indicators are ordered categorical (ordinal) an alternative to maximum likelihood (ML) should be used. The best estimation method for categorical indicators and non-normal data was identified to be robust mean and variance adjusted weighted least squares (WLSMV), which is included in the M*plus* 5.1 software package (Brown, 2006; Finney & DiStefano, 2006; Flora & Curran, 2004; Muthen & Muthen, 2007). The WLSMV estimator was used for all modelling.

The WLSMV estimator provides "weighted least square parameter estimates using a diagonal weight matrix (W) and standard errors and a mean- and variance-adjusted chi-squared test statistic that uses a full weight matrix" (Muthen & Muthen, 2007, p. 484). Thus, use of the WLSMV estimator with categorical data results in more reliable fit statistics, parameter estimates that are less biased, and reduced Type 1 error rates (Beauducel & Herzberg, 2006; Finney & DiStefano, 2006). When using the WLSMV estimator the W is not required to be positive definite (Brown, 2006). CFAs with ordinal indicators use a tetrachoric correlation matrix for binary indicators, a polychoric correlation matrix for polytomous indicators, and a polyserial correlation matrix for a combination of continuous and ordinal variables (Brown, 2006; Schumacker & Lomax, 2004). The degrees of freedom (*df*) for WLSMV are estimated in a manner that differs from maximum likelihood. According to Muthen and Muthen (2006, Jan 20), with the WLSMV estimation method "the chi-square and degrees of freedom are adjusted until a correct *p*-value is found." Accordingly, when reporting the chi-squared statistic, it is the *p*-value that should be interpreted as opposed to the degrees of freedom. For more information see the online technical appendices of the M*plus* User's Guide (Muthen & Muthen, 2008).

4.4.4   Missing Data

Returned surveys with substantial missing data on the variables central to the study ($n = 3$) were excluded from the raw data file. Of the remaining cases ($n = 603$), the SPSS 12.1 software program was used to examine the missing responses for the demographic variables. Information from the demographic variables was used, when possible, to logically infer answers for missing responses on other demographic variables. The study variables were examined to determine the frequency and pattern of missing data using the M*plus* 5.1 software program. To maintain a large sample size while at the same time minimizing the influence of missing data, procedures for handling missing data were determined after the raw data were screened. If less than 5% of the data were missing, and the missing patterns appeared to be random, then the cases were retained for analysis (Tabachnick & Fidell, 2007).

The WLSMV estimation method uses pairwise deletion, that is, all cases are included and covariances are calculated using only available pairs of observations (Brown, 2006). Pairwise deletion uses "limited information" from pairs of variables and therefore uses all

individuals with observations on that pair (Muthen & Muthen, 2006, Feb 6). Although the use of pairwise deletion can result in a nonpositive definite covariance matrix and differing sample sizes for the CFAs and SEMs, Muthen and Muthen (2006, Feb 6) indicated that the use of pairwise deletion is why weighted least squares is more robust than maximum likelihood.

4.4.5   Model Evaluation

Model fit for both the CFA models and SEMs was evaluated using the chi-squared statistics, residual correlation matrix, and global fit indices. Statistical non-significance of a chi-squared statistic (χ^2) indicates that an observed (sample) matrix (S) and an implied (hypothesized) matrix ($\sum$) are similar and hence the difference between the two matrices is minimal. Chi-squared values close to zero indicate perfect fit between the matrices.[18] The values of the differences between the observed and implied matrices are displayed in a *residual correlation matrix*. When a specified theoretical model fits the sample data there is little difference between the implied and observed correlation matrices, hence the residual values in the residual correlation matrix are close to zero (Brown, 2006). To further assess model fit (and explore potential areas of misfit for specific variables), the overall pattern of residual correlations was inspected and the residual correlations were examined for values greater than |0.1| (Brown, 2006; Sawatzky, 2007).

Based on Hu and Bentler (1999), the global fit indices used to assess the model fit with categorical data were the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA). Acceptable model fit was defined by the following criteria: CFI $\geq$ 0.95, TLI $\geq$ 0.95, and RMSEA $\leq$ 0.08 with an ideal value of 0.06 as being indicative of a well-fitting model. For the EFAs, the standardized root mean residual (SRMR) was considered with a value less than 0.08 being desirable (Brown, 2006; Hu & Bentler, 1999; Schumacker & Lomax, 2004). These widely accepted criteria for evaluating model fit were initially based on models using continuous variables (Beauducel & Herzberg, 2006). Beauducel and Herzber (2006) conducted a simulation study to evaluate the applicability

---

[18]   The chi-squared statistic may be statistically significant because it is sensitive to increased degrees of freedom, larger sample size (>200), and deviations from multivariate normality (Schumacker & Lomax, 2004).

of the traditional global fit indices with ordinal variables (two to six categories). They found that the SRMR was the same when using WLSMV and ML estimation, whereas the RMSEA was slightly larger for models estimated with WLSMV for four to six categories. For variables with two and three categories, the reverse was found for both the SRMR and RMSEA. The CFI values for WLSMV estimation, for variables with five or six categories, were the same as the CFI based on ML estimation; but, for variables with two and three categories, the CFI values were larger with WLSMV estimation. The TLI values for variables with two and three categories resulted in larger values with WLMSV estimation; however, for variables with five and six categories the TLI values were smaller with WLMSV estimation in comparison with ML estimation (Beauducel & Herzberg, 2006). For the current study, the criteria for model fit were applied in a cautious manner recognizing the need for further simulation studies exploring global fit indices and WLSMV estimation, particularly with variables that are skewed and kurtotic (Beauducel & Herzberg, 2006). Multiple indices were used in this study because they provided different information about model fit (i.e., absolute fit, effect of model complexity, and fit adjusting for model parsimony) and a conservative and reliable evaluation of the solution (Brown, 2006).

Model evaluation and localized areas of strain (when one or more of the global fit indices were outside the acceptable range) were assessed using additional statistics: (a) the *residual correlation matrix* was examined, which provides specific information about the difference between the observed and implied matrices (values $\geq |0.10|$), (b) the *standardized residuals* were examined, which can be interpreted as *z* scores (values $\geq |1.96|$ are statistically significant at $p < 0.05$), (c) the *modification indices* (MI) and the *standardized expected parameter change* (EPC) were examined, which reflect an approximation of how much the overall model χ^2 would decrease and the parameter estimates would change if a given parameter was freely estimated (values ≥ 10.0), (d) *direction, magnitude, and statistical significance of the parameter estimates* (factor loading ≥ 0.40 and unstandardized parameter estimates/standard error $\geq |1.96|$), and (e) *R-squared* of the factor loadings ($R^2 > 0.49$) (Brown, 2006; Hu & Bentler, 1999; Schumacker & Lomax, 2004).

Model respecification, where indicated, was guided by prior theory and evidence to add or remove parameters (Brown, 2006). Consideration was given to the original measurement

structure and substantive justification of the established instruments. In some instances, model fit may have improved with further respecification; however, attempts were made to keep the instruments as similar as possible to their original structure (e.g., the MBI). To assess the overall model fit between competing models, the chi-squared difference test (DIFFTEST) was used. This test compares the chi-squared statistics of two nested models to evaluate the significance of the difference between the models (Brown, 2006). CFAs estimated with WLSMV have their *df* calculated differently (for further information see Muthen and Muthen (2007)) from those estimated with ML. Accordingly, the DIFFTEST in M*plus* 5.1 software was used to compare the chi-squared statistics of two nested models. The pattern and range of the residual correlations for the competing models were also examined for values greater than |0.10| (Brown, 2006; Sawatzky, 2007).

4.5   Additional Statistical Methods

To test internal consistency reliability, researchers have traditionally used Cronbach's coefficient alpha. However, in the context of a CFA measurement model, Cronbach's alpha does not provide a dependable estimate of multiple-item measures when items cross-load (Brown, 2006). A suggested alternative to estimate scale reliability has been the composite reliability score. For continuous variables, the composite reliability of each latent variable takes into consideration the parameter estimates and error variances of items measuring the construct (Brown, 2006). In factor analysis with ordered categorical outcomes the composite reliability score is not interpretable and would require use of item response theory techniques (Muthen & Muthen, 2006, May 4), which is beyond the scope of this dissertation.

After model fit was determined, the Pratt Index was used to examine the proportion of variation accounted for by each construct in the model (Thomas et al., 1998). In other words, once good model fit was obtained for the structural models, the Pratt Index (*d*) was calculated to determine the relative importance of each of the *perceived* and *actual* diversity variables in explaining burnout. For additional information about the Pratt Index refer to Thomas, Hughes, and Zumbo (1998) and Zumbo (2007).

4.5.1   Testing the Mediation Models

A mediating variable is the variable that provides a possible causal explanation as to *how* or *why* an independent (exogenous) variable causes a dependent (endogenous) variable. In other words, following a causal sequence, an independent variable leads to a mediator variable which in turn leads to a dependent variable (Baron & Kenny, 1986; MacKinnon, 2008). Mediation models are concerned with the *overall direct effect*, *direct effect*, and *indirect* (mediated) *effect*. The relationship between an exogenous variable and an endogenous variable (without controlling for a mediator variable) is referred to as the *overall direct effect* (c) (Wu & Zumbo, 2008). Although Baron and Kenny (1986) identified a statistically significant overall direct effect as a required condition for mediation, more recently, researchers have argued against its necessity (MacKinnon, 2008; Wu & Zumbo, 2008). For example, the requirements that Baron and Kenny proposed do not allow for suppression or inconsistent mediation (MacKinnon, Krull, & Lockwood, 2000). The *direct effect* (c') refers to the relationship between an exogenous variable and an endogenous variable, while controlling for a mediator variable (see Figure 4.3). The *total indirect effect* (ab) refers to the product of the indirect effect (a) between an exogenous variable on the mediator variable and the indirect effect (b) between a mediator variable on an endogenous variable. The quantity of the total indirect effect reflects how much a one unit change in an exogenous variable affects an endogenous variable indirectly through a mediator variable. Another effect often examined in mediation models is the *total effect*, which is the sum of the direct effect (c') and the total indirect effect (ab) (MacKinnon, 2008).

Figure 4.3   Single Mediator Model
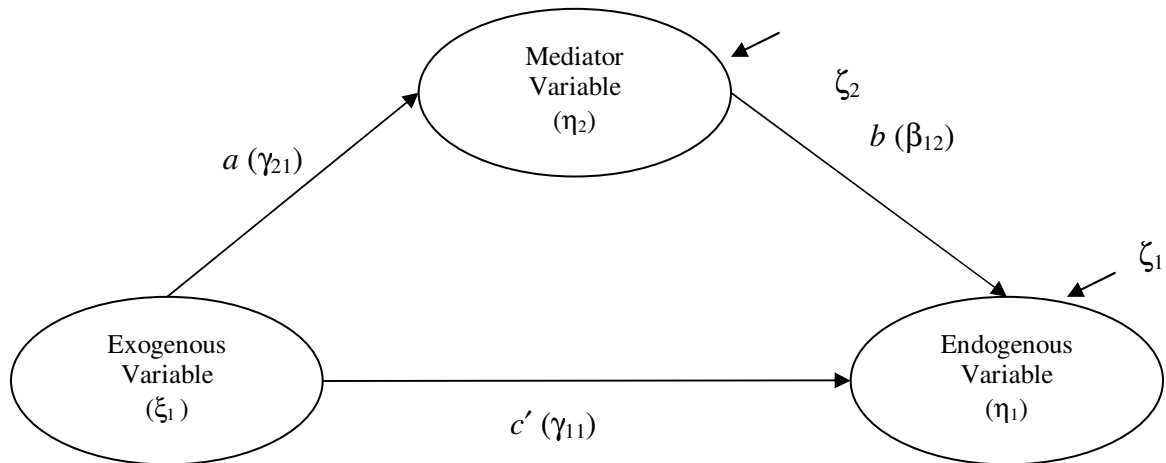
Note. Notations in brackets represent the Greek symbols used to represent matrices and parameters for SEM.

(adapted from MacKinnon, 2008)

The various methods used in testing for mediation can be grouped into three categories: (a) the casual step based on testing hypotheses consistent with mediation (also referred to as the Baron and Kenny method), (b) the differences in coefficients ($c - c'$), and (c) the product of coefficients (*ab*) (MacKinnon, 2008). MacKinnon et al. (2002) conducted a simulation study to determine the Type I error rates and statistical power for the various methods used to test for mediation. They concluded that the most important conditions for mediation are that the indirect effects (*a* and *b*) and the product of these effects (*ab*) are statistically significant.

Building on the work of Baron and Kenny (1986) and MacKinnon (2008) the following four-step procedure for testing for mediation effects within a SEM framework was followed:

1. The first step was to test the fit of the relevant model and to examine the overall direct effects for the *actual* and the *perceived* diversity variables (age, education, ethnicity/race, and work values) on burnout (EE, DP, and PA). This step is referred to as *Condition 1*. The next step

was to test the mediator model. Although, statistically significant parameter estimates for the overall direct effects may provide information as to whether a mediation effect is in place (Baron & Kenny, 1986), given recent work by others (MacKinnon, 2008; Wu & Zumbo, 2008), the mediator models were analyzed with all exogenous variables in the model regardless of their significance. If no statistically significant mediated effects were identified for a particular variable, then it was removed, the model was respecified, and subsequent analyses were conducted.

2. If the mediator model fit the data, then the indirect (mediating) effects of the *actual* and *perceived* diversity variables on the conflict latent variables and the conflict latent variables on the burnout latent variables were tested. The relationship between the exogenous variables (*actual* and *perceived* diversity in age, education, ethnicity/race, and work values) and the mediator variables (intragroup and individual relationship, task, and process conflict) are referred to as *Condition 2. Condition 3* refers to the relationship between the mediator variables with the endogenous latent variables (EE, DP, and PA), while controlling for the exogenous variables. The relationships for both Conditions 2 and 3 must be statistically significant to establish that a mediation effect is in place (MacKinnon, 2008).

3. The total indirect effect (*ab*) was examined to determine the statistical significance of the mediation effect (whether an observed effect was due to chance). In a single mediator model, the value for the total indirect effect is the effect of the exogenous variable on the endogenous variable that is indirect, through the mediating variable. The total indirect effect must be statistically significant to conclude that a mediation effect exists (*Condition 4*) (MacKinnon, 2008). In M*plus*, significance tests for indirect effects are calculated using the parameter estimate of the indirect effect and its standard error to provide *p*-values and confidence intervals (MacKinnon, 2008). According to MacKinnon (2008), "Confidence intervals provide more information about a mediated effect because a range of possible values for the mediated effect are considered rather than one single value" (pp. 79-80).

4. To determine whether an effect was partially or completely mediated, the direct effect (*c´*) of an exogenous variable on an endogenous variable, while controlling for a mediator variable, is compared to the overall direct effect (*c*). To establish that a variable *completely mediates* a

relationship, the direct effect should be close to zero and nonsignificant (MacKinnon, 2008). In other words, once a mediator is included to explain the variation in an endogenous variable, the overall direct effect disappears and the mediation hypothesis is supported (Wu & Zumbo, 2008). If the indirect effect is significant and the direct effect is reduced (but not zero), then the relationship is said to be *partially mediated* (Wu & Zumbo, 2008).

These steps in the analysis of a single mediator can be applied to a model with two or more mediators in combination with more than one exogenous and endogenous latent variables (MacKinnon, 2008). For additional information about mediator models with ordered categorical (ordinal) variables see MacKinnon (2008). Further statistical methods were used to determine the degree of mediation (effect size) (MacKinnon et al., 2000), that is, the degree to which the relationships between diversity and burnout were mediated by relationship and task conflict. This was calculated by dividing the total indirect effect (*ab*) by the total effect (and multiplied by 100%) to create a percentage.

4.6   Ethical Considerations

Before conducting the study, ethical approval was obtained from the University of British Columbia, Behavioural Research Ethics Board (see Appendix C) and the appropriate Health Authority (see Appendix D). The principles outlined in the Canadian Tri-Council Policy Statement for Research Involving Human Subjects were adhered to. Nurses agreeing to participate in this study were assured that their participation was voluntary, that they had the right to refuse to participate, and that their responses would remain anonymous and have no effect on their employment. Consent to participate was implied by completion of the questionnaire. The participants' confidentiality was protected by ensuring that no identifying information was entered on the questionnaire. The participants were advised not to place their names on the questionnaires. To further maintain confidentiality, the participants were asked to return their completed questionnaires directly to the researcher, using the stamped return envelope. Completed study questionnaires were stored in a locked room in the School of Nursing. All data were treated as confidential and were only accessible to the researcher and the dissertation supervisor. Only aggregate data were reported. The nature of the study presented minimal risks to the participants. A contact number for the researchers was provided for those

who had questions about their participation or the content of the questionnaire. No known benefits were anticipated as a direct consequence of participating in the study; however, all participants had the option of having their name entered for a gift of funds equivalent to the cost of annual practicing registration with the College of Registered Nurses of British Columbia, as well as minor incentives (e.g., $2 coffee cards and draw prizes) that were distributed as tokens of appreciation for taking the time to complete the study questionnaire. The nurses who returned the questionnaire were given the option of receiving a brief report of the study results.

To calculate the D-scores, the fourth page of the questionnaire was labelled with an identification letter and number code to indicate a particular work unit within a specific hospital. To assure anonymity and confidentiality of the online responses, the survey was distributed to the participants by generating a URL link (and not through the Zoomerang mail server), which was included in the study correspondence (e.g., letters, e-mail correspondence, and an online instruction sheet). The participants were informed that the data from their completed online questionnaires would be stored on the Zoomerang servers, or those of their agents, which reside outside of Canada. There was no personally identifiable information on the online questionnaire.

4.7   Chapter Summary

This chapter has provided the details of the methods for this study, including sampling, data collection, instrumentation, data analysis, and ethics. A total of 603 practicing nurses from two acute care hospitals in an urban setting completed the 138-item self-administered questionnaire. The data collection process took approximately 10 to 12 weeks in each hospital site and was guided by Dillman's Tailored Design Method, which involved the use of multiple points of contact combined with a foot-in-the-door approach. Two approaches were used to operationalize the relational diversity construct (exogenous variable); the D-score to measure "*actual*" diversity and the perceptual approach to measure "*perceived*" diversity. The mediator variable, interpersonal conflict (relationship, task, and process) was measured using both the Intragroup Conflict Scale and the Individual Conflict Scale. The endogenous latent variable, burnout, was measured using the Maslach Burnout Inventory. At the individual level of analysis, structural equation modelling was used to model the main and mediating relationships between relational diversity, interpersonal conflict, and burnout while controlling for

measurement error. Ethical approval was obtained from the University of British Columbia Behavioural Research Ethics Board and the appropriate Health Authority.

5   FINDINGS

This chapter provides the details of the preparation of the data prior to analysis and the findings of the descriptive statistical procedures and confirmatory factor analyses (CFA). The first section of this chapter focuses on the preparation and screening of the data. Next, the employment and demographic characteristics of the sample are presented to provide an overview of the participants involved in the study. The third section presents the results of the CFA portion of the data analysis, which examined the measurement models of the latent variables. The findings are presented for the exogenous variables (*actual* and *perceived* relational diversity for age, education, ethnicity/race, and work values) first, followed by the hypothesized mediator variables (relationship, task, and process conflict), and then the exogenous variables (three aspects of burnout). Given the iterative nature of structural equation modelling, once the measurement models were established then the missingness of the study variables was examined and the descriptive statistical procedures completed. The final section of this chapter provides a summary of the descriptive statistics for all study variables.

5.1   Data Screening and Variable Transformation

The data were screened for questionable response patterns (e.g., length of service as a nurse shorter than length of service on a nursing unit), multiple responses, incorrect data entry and coding errors, and missing responses. Inconsistencies between years worked as a nurse, years worked on a nursing unit, and years worked at a hospital were visually inspected and corrected accordingly. Information from the demographic variables was used to deduce answers for some of the missing responses on other demographic variables. For example, if a respondent indicated his/her job title as "*Staff Nurse – Registered Nurse*," the information was used to conclude that the type of licensure held, if missing, was "*Registered Nurse*." To create an ethnicity/race variable with only one response, which was necessary to calculate the Euclidean distance scores (D-score), missing, implausible, and multiple responses about how the respondents *perceived* their ethnicity/race ("*Are you . . .*" [list of responses such as White, Chinese, South Asian, Black, Filipino, see Appendix B]) were modified based on their answers to the questions about the ethnic/cultural background of their ancestors ("*To which ethnic or cultural group did your ancestors belong*?"), languages spoken at home, and country where they

completed their first/initial nursing education program. The "*language spoken*" variable was treated in a similar manner. For example, 113 (19%) participants reported that they spoke English and another language at home and their language was noted to be a language other than English. Approximately 5 participants reported speaking more than 2 languages and they were reassigned to the language most consistent with their self-identified ethnicity/race.

For all Likert scale items, if the respondents selected more than one response (e.g., "*2*" and "*3*") the data were entered as an average value (i.e., 2.5), to one decimal place. After data entry, all scale items with midpoints were reviewed and reassigned a whole number score (e.g., either a "*2*" or "*3*") using random assignment software. Table 5.1 provides an overview of the number of items per scale that required rescaling for midpoint values.

Table 5.1   Summary of Scale Items with More than One Response

Variable	Question/item number	Items frequency (%)	Respondents frequency (%)
Contemporary Work Values Scale (35 items)	Section A: 3, 6, 8, 9, 10, 14, 16, 17, 20, 22, 23, 26, 29, 31, 32, 34	16 (45.7)	20 (3.3)
Perceived Similarity Scale (14 items)	Section C: 1, 4, 5, 6, 7, 10, 11, 13, 14	9 (64.3)	14 (2.3)
Intragroup Conflict Scale (12 items)	Section E: 1, 4, 8, 12	4 (33.3)	4 (0.7)
Individual Conflict Scale (11 items)	Section G: 1, 3, 5, 6, 7, 8, 9, 10, 11	9 (81.8)	18 (3.0)
Maslach Burnout Inventory (27 items)	Section B: 9, 10, 13, 14, 16, 19, 20, 22, 23, 26	10 (37.0)	13 (2.2)

Note. $N = 603$. Random assignment software was used for all scale items with midpoints to round up or down the value to a whole number.

5.2   Descriptive Statistics of the Sample

This section provides an overview of the employment and demographic characteristics of the sample. The sample ($N = 603$) consisted of 282 nurses (46.8%) from Site A and 321 nurses (53.2%) from Site B (see Table 5.2) (82% response rate, see Table 4.2). Of the entire sample, 456 (75.6%) were employed on medical, surgical, or medical/surgical combination nursing units and 147 (24.4%) were employed on non-medical/surgical nursing units (i.e., perinatal, paediatric, or neonatal intensive care units). Registered nurses represented 86.6% ($n = 522$) of the sample and licensed practical nurses (LPN) represented 13.4% ($n = 81$). The predominant job title of the respondents was "*RN staff nurse*" ($n = 482$, 79.9%). The respondents ranged in length of service as a nurse from 1 month to 45 years ($M = 14.1$ years; $SD = 11.9$),

their length of service at the current hospital ranged from 1 month to 37 years ($M = 8.9$ years; $SD = 9.2$), and length of service with the current nursing unit ranged from 1 month to 36 years ($M = 6.9$ years; $SD = 8.0$). Table 5.2 further delineates the length of service of the nurses in their profession as well as with their current units and hospitals. More than one half of the nurses ($n = 331$, 54.9%) were employed full-time, 26.0% were employed part-time ($n = 157$), and the remainder ($n = 115$, 19.1%) were employed on a casual or temporary basis.

Table 5.2   Employment Characteristics of the Respondents

Characteristic	Site A frequency (%)	Site B frequency (%)	Total sample frequency (%)	Between group comparison statistic
Job Title				$\chi^2 = 7.52$
Registered nurse (RN)	213 (75.5)	269 (83.8)	482 (79.9)	($df = 3$)
Clinical resource nurse or patient care coordinator (RN)	13 (4.6)	14 (4.4)	27 (4.5)	
Clinical nurse educator or clinical nurse specialist (RN)	8 (2.8)	5 (1.6)	13 (2.2)	
Licensed practical nurse	48 (17.0)	33 (10.3)	81 (13.4)	
Years Worked as a Nurse[a]				$\chi^2 = 11.88$
Less than 1 year	29 (10.4)	26 (8.1)	55 (9.2)	($df = 8$)
1 to 2 years	45 (16.1)	32 (10.0)	77 (12.8)	
3 to 5 years	31 (11.1)	39 (12.1)	70 (11.7)	
6 to 10 years	52 (18.6)	47 (14.6)	99 (16.5)	
11 to 15 years	27 (9.6)	37 (11.5)	64 (10.7)	
16 to 20 years	24 (8.6)	27 (8.4)	51 (8.5)	
21 to 25 years	21 (7.5)	29 (9.0)	50 (8.3)	
26 to 30 years	22 (7.9)	40 (12.5)	62 (10.3)	
Greater than 30 years	29 (10.4)	43 (13.4)	72 (12.0)	
Years Worked as a Nurse on Nursing Unit[b]				$\chi^2 = 21.01^*$
Less than 1 year	67 (24.2)	68 (21.3)	135 (22.7)	($df = 6$)
1 to 2 years	82 (29.6)	58 (18.2)	140 (23.5)	
3 to 5 years	30 (10.8)	46 (14.4)	76 (12.8)	
6 to 10 years	49 (17.7)	56 (17.6)	105 (17.6)	
11 to 15 years	18 (6.5)	26 (8.2)	44 (7.4)	
16 to 20 years	17 (6.1)	24 (7.5)	41 (6.9)	
Greater than 20 years	14 (5.1)	41 (12.9)	55 (9.2)	
Years Worked as a Nurse in Hospital[c]				$\chi^2 = 12.58^*$
Less than 1 year	47 (16.7)	55 (17.2)	102 (17.0)	($df = 6$)
1 to 2 years	68 (24.4)	47 (14.7)	115 (19.2)	
3 to 5 years	40 (14.3)	40 (12.5)	80 (13.4)	

Characteristic	Site A frequency (%)	Site B frequency (%)	Total sample frequency (%)	Between group comparison statistic
6 to 10 years	46 (16.5)	59 (18.4)	105 (17.5)	
11 to 15 years	22 (7.9)	35 (10.9)	57 (9.5)	
16 to 20 years	24 (8.6)	30 (9.4)	54 (9.0)	
Greater than 20 years	32 (11.5)	54 (16.9)	86 (14.4)	
Current Employment Status on Unit				$\chi^2 = 8.54^*$
Full-time	167 (59.2)	164 (51.1)	331 (54.9)	$(df = 3)$
Part-time	59 (20.9)	98 (30.5)	157 (26.0)	
Temporary full- or part-time	12 (4.3)	8 (2.5)	20 (3.3)	
Casual	44 (15.6)	51 (15.9)	95 (15.8)	

Note. $N = 603$; Valid percent used.
[a]Total missing = 3. [b]Total missing = 7. [c]Total missing = 4.
$^*p \leq 0.05$

The demographic characteristics of the sample are found in Table 5.3. The average age of the respondents was 40.3 years ($SD = 11.1$, $n = 585$) and their ages ranged between 22 and 65 years. All age groups were represented fairly equally. Most of the nurses (94.3%, $n = 567$) were female. The nurses' education ranged from LPN diploma 13.0% ($n = 78$) to graduate education at the master's level (1.2%). An equivalent number of nurses reported their highest level of nursing education as a RN diploma ($n = 267$, 44.4%) or a baccalaureate (in nursing) ($n = 250$, 41.5%); however, fewer nurses ($n = 207$, 34.4%) reported their *first* educational qualification as a baccalaureate (in nursing). The year when these nurses completed their first educational qualification ranged between 1951 and 2007. Almost three quarters (73.1%, $n = 441$) of the nurses completed their first nursing educational qualification in Canada. Of those that completed their first nursing education in another country, most reported an Asian country. For those educated outside of Canada, the average length of time they had lived in Canada was 14.6 years ($SD = 10.7$, range = 2 months to 42 years). Of those nurses who reported their ethnicity/race ($n = 598$), slightly more than one-half self-identified as "*white*" (56.5%, $n = 338$). The two other predominant ethnicity/race categories were "*Filipino*" (16.7%, $n = 100$) and "*South Asian*" (13.2%, $n = 79$). When asked what language was spoken at home, about two-thirds (67.7%, $n = 407$) reported speaking "*English*;" the other predominant languages included "*Tagalog*" (10.8%, $n = 65$) and "*Punjabi/Hindi*" (8.7%, $n = 52$).

5.2.1   Hospital-based Group Differences

Differences in the employment and demographic characteristics of the Site A and Site B respondents were explored through the use of the chi-squared statistic (see Table 5.2 and Table 5.3). Based on the criterion of $p \leq 0.05$, group differences of primary concern were those demographic variables in the model used to calculate the D-scores, namely, age, highest level of education, and ethnicity/race. Site A and Site B nurses did not significantly differ with respect to their age. A significant difference between the hospitals was found for the nurses' ethnicity/race and their highest nursing education. To account for the small cell counts for the different ethnicity/race categories in each hospital, the variable was recoded into two categories: "*white*" and "*all other*." The χ^2 statistic was significant ($\chi^2 = 3.74$, $df = 1$, $p \leq 0.05$); Site B had significantly more "*white*" nurses in the sample and their educational backgrounds differed (which may have been influenced by the inclusion of non-medical surgical units at Site B) in comparison with Site A. However, the focus of this study was the ethnicity/race and highest level of nursing education of the individual nurse relative to other members of his or her nursing unit (relational diversity). Accordingly, these significant group differences between Site A and B are likely addressed through the use of the D-score measure.

Table 5.3   Demographic Characteristics and Hospital-based Group Comparisons of the Respondents

Characteristic	Site A frequency (%)	Site B frequency (%)	Total sample frequency (%)	Between group comparison statistic
Age[a]				$\chi^2 = 3.21$
20 to 29 years	61 (22.2)	72 (23.2)	133 (22.7)	(*df* = 4)
30 to 39 years	86 (31.3)	79 (25.5)	165 (28.2)	
40 to 49 years	60 (21.8)	72 (23.2)	132 (22.6)	
50 to 59 years	58 (21.1)	78 (25.2)	136 (23.2)	
60 years plus	10 (3.6)	9 (2.9)	19 (3.2)	
Gender[b]				$\chi^2 = 6.32^*$
Female	258 (91.8)	309 (96.6)	567 (94.3)	(*df* = 1)
Male	23 (8.2)	11 (3.4)	34 (5.7)	
First Educational Qualification in Nursing[c]				$\chi^2 = 11.24^{*d}$
LPN Diploma	63 (22.4)	48 (15.0)	111 (18.4)	(*df* = 4)
RPN Diploma	1 (0.4)	5 (1.6)	6 (1.0)	
RN Diploma (hospital program)	57 (20.3)	78 (24.3)	135 (22.4)	
RN Diploma (community college program)	57 (20.3)	86 (26.8)	143 (23.8)	
Baccalaureate in Nursing	103 (36.7)	104 (32.4)	207 (34.4)	
Year Completed First Educational Qualification in Nursing[e]				$\chi^2 = 11.85^*$
1950-1969	15 (5.4)	8 (2.5)	23 (3.9)	(*df* = 4)
1970-1979	38 (13.7)	72 (22.4)	110 (18.4)	
1980-1989	46 (16.5)	61 (19.0)	107 (17.9)	
1990-1999	76 (27.3)	73 (22.7)	149 (24.9)	
2000-2007	103 (37.1)	107 (33.3)	210 (35.1)	
Highest Educational Qualification in Nursing[f]				$\chi^2 = 9.99^{*g}$
LPN Diploma	46 (16.4)	32 (10.0)	78 (13.0)	(*df* = 2)
RN Diploma	108 (38.4)	155 (48.3)	263 (43.7)	
Bachelor of Nursing	124 (44.1)	130 (40.5)	250 (42.2)	
Master of Nursing	3 (1.1)	4 (1.2)	7 (1.2)	
Country of First Education in Nursing[h]				$\chi^2 = 0.26$
Canada	209 (74.1)	232 (72.3)	441 (73.1)	(*df* = 1)
Other Country	73 (25.9)	89 (27.7)	162 (26.9)	
Southeast Asia (Malaysia and Philippines)	43 (15.4)	25 (7.9)	68 (11.4)	
North/West/South Asia (Iran, India, Pakistan, Russia and United Arab Emirates)	14 (5.0)	11 (3.5)	25 (4.2)	
Northern Europe (United Kingdom)	3 (1.1)	16 (5.0)	19 (3.2)	
East Asia (China, Hong Kong, and Japan)	1 (.4)	16 (5.0)	17 (2.9)	

Characteristic	Site A frequency (%)	Site B frequency (%)	Total sample frequency (%)	Between group comparison statistic
Eastern and Western Europe (Romania, Czechoslovakia, Poland, Bulgaria, Moldova, Netherlands, and France)	4 (1.4)	8 (2.5)	12 (2.0)	
Australia and Pacific Ocean (Fiji, New Zealand, and Australia)	3 (1.1)	6 (1.9)	9 (1.5)	
United States and Central America (Mexico and Nicaragua)	2 (0.7)	2 (0.6)	4 (0.7)	
Africa	0	1 (0.3)	1 (0.2)	
Ethnicity/Race[i]				$\chi^2 = 3.74^*$
White	146 (52.3)	192 (60.2)	338 (56.5)	($df = 1$)
All other	133 (47.7)	127 (39.8)	260 (43.5)	
Chinese	6 (2.2)	30 (9.4)	36 (6.0)	
South Asian	50 (17.9)	29 (9.1)	79 (13.2)	
Black	4 (1.4)	7 (2.2)	11 (1.8)	
Filipino	61 (21.9)	39 (12.2)	100 (16.7)	
Latin American	2 (0.7)	2 (0.6)	4 (0.7)	
Southeast Asian	3 (1.1)	4 (1.3)	7 (1.2)	
West Asian	2 (0.7)	8 (2.5)	10 (1.7)	
Japanese	2 (0.7)	3 (0.9)	5 (0.8)	
Korean	1 (0.4)	2 (0.6)	3 (0.5)	
Pacific Islander	2 (0.7)	0 (0)	2 (0.3)	
First Nations, Aboriginal, or Métis	0 (0)	3 (0.9)	3 (0.5)	
Language Spoken[j]				$\chi^2 = 0.40$
English	186 (66.4)	221 (68.8)	407 (67.7)	($df = 1$)
All other	94 (33.6)	100 (31.2)	194 (32.3)	
Tagalog (Filipino)	38 (13.6)	27 (8.4)	65 (10.8)	
Punjabi/Hindi	35 (12.5)	17 (5.3)	52 (8.7)	
Mandarin/Cantonese	4 (1.4)	26 (8.1)	30 (5.0)	
Other (e.g., Taiwanese, French, Punjabi, Hindi, Farsi, Vietnamese, Polish, Romanian, Spanish)	17 (6.1)	30 (9.3)	47 (7.8)	

Note. $N = 603$, Site A = 282 and Site B = 321; Valid percent used.
[a]Total missing data = 18. [b]Total missing data = 2. [c]Total missing data = 1.
[d]2 cells (RPN diploma) had expected counts of less than 5. The chi-squared statistic had RPN diploma combined with RN diploma (community college). [e]Total missing data = 4. [f]Total missing data = 1. [g]2 cells (Master of Nursing) had expected counts less than 5. The chi-squared statistic had Master's combined with baccalaureate. [h]Total missing data = 7. [i]Total missing data = 5; 7 respondents indicated multiple responses which were recoded as one response; 2 white participants also indicated Romanian and Filipino; 2 Chinese respondents also indicated Latin American and Caribbean, respectively; 2 South Asian respondents also indicated Southeast Asian and West Indian, respectively; West Asian participant also indicated Arab. [j]Total missing data = 2 (Site A); 113 respondents indicated English and another language, which were coded according to the non-English language and approximately 5 respondents indicated more than 2 languages, which were recoded to one language according to ethnicity/race background.
$^*p \leq 0.05$

5.3   Measurement Model for the Exogenous Variables: *Actual* Diversity

As discussed in Chapter 4, one approach to measuring relational diversity is the use of

the Euclidean distance score (D-score). The age, education, and ethnicity/race attributes were

measured with one item for each attribute,[19] which were subsequently used in the calculation of

the D-score for each respondent (see Equation 4.1). To calculate the D-score for the work values

attribute the *Contemporary Work Values* (CWV) *Scale* was used. This scale asked respondents to

rate their agreement with 35 statements about their work beliefs and attitudes (Wayne, 1989).

This first section examines the measurement structure of this scale. Once the measurement

structure was finalized, the items were summed and averaged, to create an average total score,

which was then used to create a D-score for each respondent. The *actual* diversity variables were

modelled as manifest variables in the structural modelling portion of the analysis, which

examined the influence of *actual* diversity on burnout, as mediated by conflict.

5.3.1   Exploratory Factor Analysis of the Contemporary Work Values Scale

Using the M*plus* 5.1 software, the 35-item CWV Scale was subjected to a series of

explanatory factor analyses (EFA) to confirm the claims published about the scale and its

unidimensionality. Data analysis occurred for the purpose of identifying several items, which

taken together, represent the work values construct. All data for the EFA were treated as ordinal

and non-normal. Oblique geomin rotation was used as the default for the WLSMV estimator

method. Cases with missing values were excluded pairwise from the analyses. This systematic

process guided the factor analysis: (a) the factor structure was restricted to one factor, (b) the

items with the lowest factor loadings (≤ 0.55) were removed serially from the analysis, and

(c) the global fit indices were reviewed and acceptable limits were established as CFI ≥ 0.95, TLI

≥ 0.95, SRMR ≤ 0.08, and RMSEA ≤ 0.08 with a preferred value of 0.06 (Brown, 2006; Hu &

Bentler, 1999; Schumacker & Lomax, 2004).

The initial step was to conduct an EFA specifying a one-factor structure with the

entire 35 items. The overall goodness-of-fit indices suggested that the one-factor model with all

---

[19]   Age in years was calculated based on year of birth. For their education, respondents indicated their
highest level of education in nursing (LPN Diploma, RPN Diploma, RN Diploma, Bachelor of Nursing, Master of
Nursing). To determine their ethnicity/race, the respondents were asked to self-identify the category that best
represented their background.

of the indicators did not fit the data well, $\chi^2_{(171)}$ = 1616.90, $p \leq 0.001$, CFI = 0.71, TLI = 0.86, RMSEA = 0.12 and SRMR = 0.10. The factor loadings ranged from 0.16 to 0.73. Based on the above analysis plan, several other EFA models were estimated with one poor indicator removed serially. The model with the best fit was a one-factor structure with 16 indicators, $\chi^2_{(65)}$ = 328.10, $p \leq 0.001$, CFI = 0.93, TLI = 0.97, RMSEA = 0.08, and SRMR = 0.06. Table 5.4 provides the factor loadings for each indicator (range from 0.55 to 0.76) and Figure 5.1 depicts the specification of the final model. The eigenvalue for the one factor was 7.33 and the inter-item correlations ranged from 0.24 to 0.60 (see Appendix E1). The residual correlations ranged from -0.12 to 0.14.

Table 5.4 **Structure Matrix of the EFA for the 16-item Contemporary Work Values Scale**

Variable name	Item	Factor loading	R^2
A1WE	I expect work to be a meaningful and fulfilling part of my life.	0.59	0.35
A4WE	I need to be listened to by my superiors; work should be a two-way communication process.	0.56	0.31
A8WE	I desire work that provides opportunities for personal growth and allows me to "feel good inside."	0.68	0.46
A11WE	It is important to me that my job provides opportunities to strengthen my abilities and talents.	0.74	0.54
A14WE	I am very concerned that I receive personal satisfaction from my work.	0.57	0.33
A16WE	Work provides many opportunities for "personal growth" experiences.	0.64	0.40
A17WE	I enjoy work assignments that are challenging and require extensive use of thought processes.	0.65	0.42
A20WE	Work is beneficial in helping me to become a "whole" person.	0.68	0.46
A24WE	Work contributes to my understanding and development of my character and capabilities.	0.74	0.55
A25WE	Work should provide me with a high degree of self-satisfaction or self-fulfillment.	0.73	0.54
A28WE	I want to be informed about the activities and plans of my nursing unit.	0.59	0.35
A29WE	I seek work experiences that help me expand and use my potential to the fullest extent possible.	0.71	0.51
A30WE	I would like variety in my work.	0.62	0.38
A31WE	Work provides individuals with an opportunity to "grow" and realize their full potential.	0.76	0.57
A32WE	I seek various emotional and psychological rewards from working in addition to my pay cheque.	0.66	0.44
A34WE	Work should be an extension of one's lifestyle and not merely a means to obtain subsistence.	0.55	0.31
	Chi-squared (df; p)	328.10 (65; ≤0.001)	
	CFI; TLI	0.93; 0.97	
	RMSEA; SRMR	0.08; 0.06	

Note. $N = 603$; Oblique geomin rotation and WLSMV estimation; Eigenvalue for one factor = 7.33.
$p < 0.001$.

The construct of contemporary work values was best explained with 16 indicators, which reflect intrinsic attitudes and behaviour. These indicators were used to calculate a total score for each participant. Because the total score did not take into consideration the number of items missing for each respondent, an average of the total score was calculated for each respondent. To compute the average total score for the CWV Scale, a criterion was established that at least 14 of the 16 items (88% of items answered) had to be completed for the case to be included in further analyses. The average total score was then used to calculate the D-score for the *actual* diversity in work values variable. This variable was treated as a manifest variable, which was used in the structural equation modelling portion of the analysis to examine the influence of *actual* diversity on burnout, as mediated by interpersonal conflict.

Figure 5.1   Final Measurement Model for the Contemporary Work Values Scale
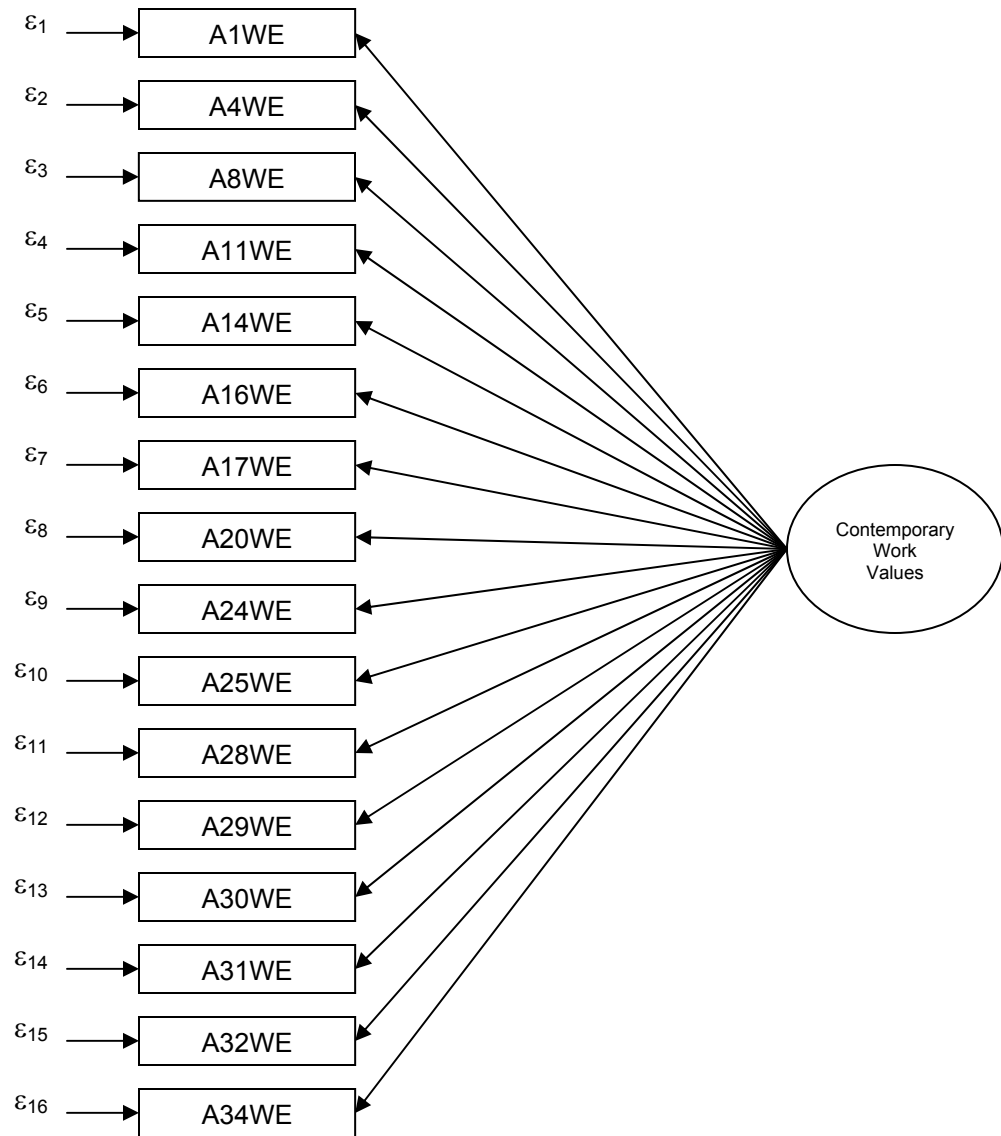
λ standardized parameters for relationships between the latent factor and the observed, $p < 0.001$.

5.4 Measurement Model for the Exogenous Variables: *Perceived Diversity*

The second approach to measuring relational diversity was the perceptual method, which asked the respondents to indicate how similar to them other members of their workgroups were on each diversity attribute. The age, education, and ethnicity/race attributes were measured with one item for each attribute. The *perceived* work values attribute was measured using 4 items (Jehn, Northcraft, & Neale, 1999), which were subjected to confirmatory factor analysis. For the structural equation modelling portion of the analysis, all of these exogenous variables were treated as latent factors.[20]

The work of Jehn et al. (1999) was used to specify the measurement model for *perceived* diversity in work values (*Perceived Work Values Diversity Scale*). The factor structure specified for this scale was a one-factor model with 4 indicators, which were measured on 6-point Likert scales. With the exception of the RMSEA, the overall goodness-of-fit indices for the CFA suggested that the one-factor model fit the data well, $\chi^2_{(2)} = 19.11$, $p < 0.001$, CFI = 0.99, TLI = 0.99, and RMSEA = 0.12. Table 5.5 lists the parameter estimates for each latent variable and Figure 5.2 depicts the specification of the final model. No modification indices were noteworthy. All of the standardized parameter estimates were greater than 0.80 and the R-squared values ranged from 0.67 to 0.69. The item-to-item correlations ranged from 0.64 to 0.69 (see Appendix E2,), which were indicative of construct validity.

---

[20]   In M*plus* software the exogenous variables (latent and manifest) are automatically treated as continuous variables. However, in this study the variables were treated as categorical. To rectify this limitation in the software, thresholds were determined for each variable and the syntax was specified in such a way that these variables could be modelled as categorical.

Table 5.5   **CFA Results for the *Perceived* Work Values Diversity Scale**

Variable name	Question	One-factor model			
		B	SE B	β	R^2
C6SPRI	In my nursing unit, the other nurses are similar to me in terms of the principles that guide their work.	1.00[*]	0.00	0.83	0.69
C2SWE	In my nursing unit, the other nurses are similar to me in terms of their work ethic (values).	0.99	0.02	0.82	0.67
C8SATT	In my nursing unit, the other nurses are similar to me in terms of their attitudes about work.	0.99	0.02	0.82	0.67
C13SBEL	In my nursing unit, the other nurses are similar to me in terms of their beliefs about work.	0.99	0.02	0.82	0.67
	Chi-squared (*df*; *p*)	19.11 (2; ≤0.001)			
	CFI; TLI	0.99; 0.99			
	RMSEA	0.12			

Note. $N = 602$. All fixed parameter estimates statistically significant, $p < 0.001$.
[*]Fixed to equal 1.0.

To further examine the misfit attributed to a larger than acceptable RMSEA, the residual correlations were inspected (ranging from -0.03 to 0.02) and additional analyses were conducted.[21] A 3-item model was just-identified and thus a goodness-of-fit evaluation did not apply; however, the magnitudes of the factor loadings were similar to the 4-item model. Given the theoretical and prior psychometric evaluation of a one-factor structure (Jehn et al., 1999) and failure to identify any areas of localized strain, the original one-factor structure with 4 items was retained (see Figure 5.2).

---

[21]   In an EFA, the SRMR = 0.01 and eigenvalue for one factor was 3.02. When the variables were treated as continuous and ML estimation was used, the RMSEA was 0.08. Based on the work of Beauducel and Herzber (2006) the RMSEA may be slightly larger for models estimated with WLSMV using four to six categories.

Figure 5.2   Final Measurement Model for the *Perceived* Work Values Scale

λ standardized parameters for relationships between the latent factor and the observed variables, $p < 0.001$.
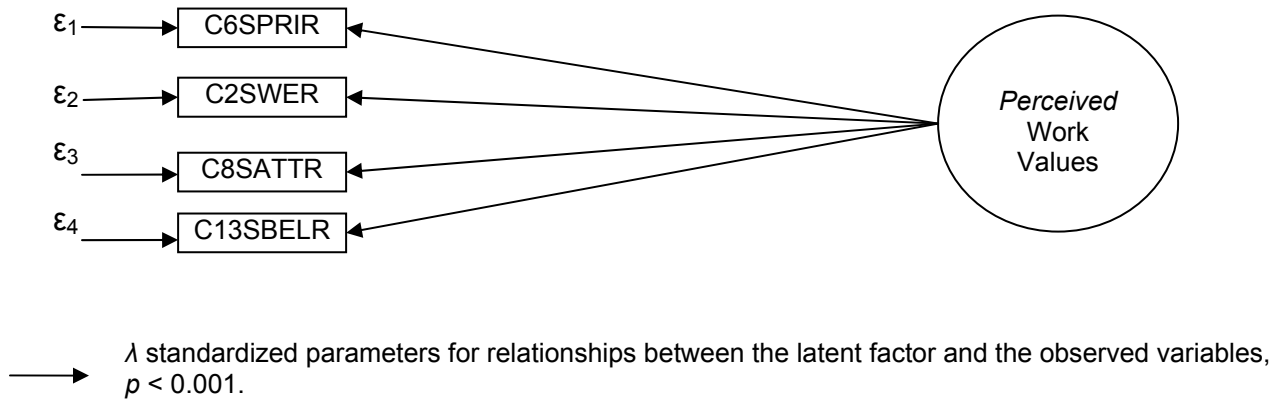
5.5   Measurement Model for the Mediator Variable: Intragroup Conflict

Prior theory and evidence (Barki & Hartwick, 2004; Jehn, 1994, 1995; Jehn & Chatman, 2000) were used to specify the measurement model that assessed how much conflict there was in a specific workgroup (*Intragroup Conflict Scale*). The Intragroup Conflict Scale consisted of three latent variables that were composed of several indicators: relationship conflict (5 items), task conflict (4 items), and process conflict (3 items). Several steps were followed to confirm the factor structure of this scale.

The initial factor structure examined was a three-factor model with 12 indicators. Table 5.6 lists the indicators loaded onto their respective latent variable. With the exception of the RMSEA, the overall goodness-of-fit indices suggested that the three-factor model fit the data well, $\chi^2_{(36)} = 202.96$, $p < 0.001$, CFI $= 0.97$, TLI $= 0.995$, and RMSEA $= 0.09$. To further examine the misfit attributed to a larger than acceptable RMSEA, the residual correlations (ranging from -0.05 to 0.05) and modification indices were inspected (one value at 10.10). All of the standardized parameter estimates were greater than 0.71 and statistically significant, and the R-squared values ranged from 0.51 to 0.81 (see Table 5.7). The item-to-item correlations ranged from 0.53 to 0.78 (see Appendix E3). The correlations for the latent variables were greater than 0.70: relationship and task $= 0.96$, relationship and process $= 0.91$, and task and process $= 1.0$. As a result of the large correlations between the latent variables, the matrix was not positive definite.

116

Table 5.6 CFA Results for the Intragroup Conflict Scale with a Three-factor Solution

Variable name	Question	Three-factor model		
		B	β	R^2
RELATIONSHIP				
E1GFRIC	How much friction is there among members in your nursing unit?	1.00[*]	0.85	0.72
E4GPERS	How much are personality clashes evident among members in your nursing unit?	1.03	0.88	0.77
E7GTENS	How much tension is there among members in your nursing unit?	1.06	0.90	0.81
E10GRIV	How much rivalry is there among members in your nursing unit?	0.98	0.83	0.69
E12GANGR	How much anger is there among members in your nursing unit?	0.92	0.78	0.61
TASK				
E2GWRK	How often do members in your nursing unit disagree about the work being done?	1.00[*]	0.84	0.70
E5GIDEA	How frequently are there conflicts about work ideas among members in your nursing unit?	1.02	0.86	0.73
E8GWRKDO	How much conflict about the work you do is there among members in your nursing unit?	0.85	0.71	0.51
E9GOPIN	To what extent are there differences of opinions among members in your nursing unit?	0.98	0.82	0.67
PROCESS				
E3GWHO	How often do members in your nursing unit disagree about who should do what?	1.00[*]	0.84	0.71
E6GTASK	How frequently do members in your nursing unit disagree about the way to complete a task?	0.99	0.84	0.70
E11GDELG	How much conflict is there about delegation of tasks among members in your nursing unit?	1.00	0.84	0.71

Chi-squared (df; p)	202.96 (36; ≤0.001)
CFI; TLI	0.97; 0.995
RMSEA	0.09

Notes. $N = 602$, latent variable covariance matrix was not positive definite. Correlations for the latent variables were: Relationship → Task = 0.96, Relationship → Process = 0.91, Task → Process = 1.01.
[*]Fixed to equal 1.0.

To be able to test the hypothesized structural models it was important to be able to distinguish between the types of conflict; however, the large correlations among the conflict latent variables resulted in concerns about discriminant validity. From a theoretical standpoint, it is reasonable to expect that types of conflict may overlap, particularly the task and process items, which capture disagreements about work. At the same time, task-related conflict may evolve into relationship conflict, or vice versa (Jehn & Bendersky, 2003; Jehn & Mannix, 2001). Other researchers have reported a strong relationship between task and relationship conflict (range = 0.39 to 0.99) (Simons & Peterson, 2000). Prior psychometric evaluation of the conflict scale, using exploratory factor analysis techniques with oblique rotation, has supported both a three-factor structure (Jehn & Chatman, 2000; Jehn & Mannix, 2001; Jehn et al., 1999) and a

two-factor structure (Jehn, 1994, 1995; Pearson, Ensley, & Amason, 2002). Measuring relationship conflict, using principal component analysis with varimax rotation, Pelled (1996b) reported that 7 items loaded onto a single factor. However, no published studies have used these measures in a structural equation modelling context.

After considering the model fit for CFAs with each latent variable (one factor structures) and models with variation in the number of factors (i.e., one-factor and two-factor) the source of model misspecification was attributed to the process indicators. Guided by theory, prior evaluation of the *Intragroup Conflict Scale*, and the overall aim to achieve model parsimony, the process indicators were removed and the model was respecified as two factors: relationship conflict and task conflict. The model fit for the 9-item two-factor solution was $\chi^2_{(20)} = 87.62$, $p < 0.001$, CFI = 0.99, TLI = 0.996, and RMSEA = 0.08 with standardized factor loadings ranging from 0.71 to 0.90. Table 5.7 lists the indicators loaded onto each latent variable and Figure 5.3 depicts the specification of the final two-factor model. The residual correlations were less than or equal to |0.05| and no modification indices greater than 10.0 were identified. The correlation between relationship and task conflict was 0.96 ($p < 0.001$).

Table 5.7   CFA Results for the Intragroup Conflict Scale with a Two-factor Solution

Variable name	Question	Two-factor model			
		B	SE B	β	R^2
RELATIONSHIP					
E7GTENS	How much tension is there among members in your nursing unit?	1.00[*]	0.00	0.90	0.82
E1GFRIC	How much friction is there among members in your nursing unit?	0.94	0.02	0.85	0.73
E4GPERS	How much are personality clashes evident among members in your nursing unit?	0.96	0.01	0.87	0.76
E10GRIV	How much rivalry is there among members in your nursing unit?	0.92	0.02	0.83	0.69
E12GANGR	How much anger is there among members in your nursing unit?	0.86	0.02	0.77	0.60
TASK					
E5GIDEA	How frequently are there conflicts about work ideas among members in your nursing unit?	1.00*	0.00	0.87	0.75
E2GWRK	How often do members in your nursing unit disagree about the work being done?	0.96	0.02	0.83	0.70
E8GWRKDO	How much conflict about the work you do is there among members in your nursing unit?	0.82	0.03	0.71	0.50
E9GOPIN	To what extent are there differences of opinions among members in your nursing unit?	0.95	0.02	0.82	0.67

Chi-squared (*df*; *p*)	87.62 (20; $\leq$0.001)
CFI; TLI	0.988; 0.996
RMSEA	0.08

Note. $N = 602$. All parameter estimates are statistically significant $p < 0.001$. Correlation for Relationship → Task = 0.96.

[*]Fixed to equal 1.0.

Figure 5.3   Final Measurement Model for the Two-factor Intragroup Conflict Scale

λ standardized parameters for relationships between the latent factor and the observed variables, $p < 0.001$.
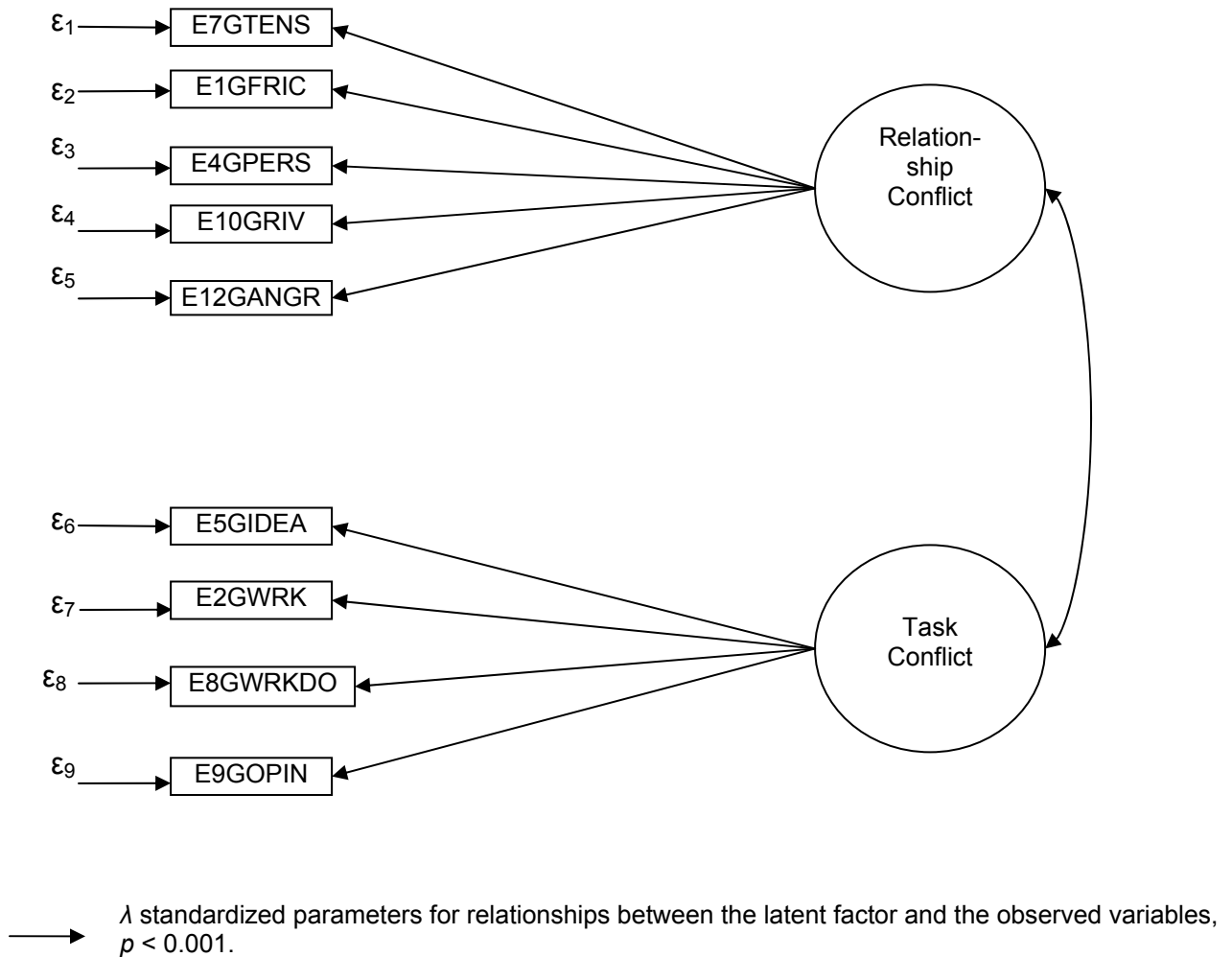
5.6   Measurement Model for the Mediator Variable: Individual Conflict

The *Individual Conflict Scale* measured individuals' perceptions of their involvement in conflict (relationship, task, and process) with their coworkers. The measurement model for this scale was based on prior theory and evidence for both this scale (Hobman, Bordia, & Gallois, 2003) and the Intragroup Conflict Scale (Jehn, 1994, 1995; Jehn & Chatman, 2000). This scale consisted of three latent factors that were composed with several indicators: relationship conflict (4 items), task conflict (4 items), and process conflict (3 items). Four steps were followed to confirm the factor structure of this scale.

120

5.6.1 Initial CFA for Three Factors with all Items

The initial factor structure examined was a three-factor model with 11 indicators. Table 5.8 lists the indicators loaded onto each latent variable. With the exception of the RMSEA, the overall goodness-of-fit indices suggested that the three-factor model fit the data well, $\chi^2_{(27)} = 143.26$, $p < 0.001$, CFI = 0.98, TLI = 0.99, and RMSEA = 0.09. To further examine the misfit attributed to a larger than acceptable RMSEA, the residual correlations were inspected (ranging from -0.08 to 0.10) and the modification indices were reviewed (3 indices ranging from 18.63 to 22.64 involved items G10IANGR and G8ITASK). All of the standardized parameter estimates were greater than 0.70 and statistically significant. The R-squared values ranged from 0.50 to 0.91. The item-to-item correlations ranged from 0.52 to 0.87 (see Appendix E4). The correlation between relationship and task conflict was 0.90, between relationship and process conflict was 0.86, and between process and task conflict was 0.95. The large correlations between the latent variables (> 0.85) raised concerns about their discriminant validity (Brown, 2006), particularly between task and process conflict. When the overall fit of an initial model is found to be satisfactory, but there is a significant amount of overlapping among latent variables, a more parsimonious solution similar to the initial structure may be achieved by combining factors (Brown, 2006).

Table 5.8   CFA Results for the Individual Conflict Scale with a Three-factor Solution

Variable name	Question	Three-factor model		
		B	β	R^2
RELATIONSHIP				
G1IFRIC	How much friction was there between you and your coworkers?	1.00*	0.90	0.81
G4IPERS	How much are personality clashes evident between you and your coworkers?	0.94	0.83	0.70
G7ITENS	How much tension was there between you and your coworkers?	1.06	0.95	0.91
G10IANGR	How often do you get angry with your coworkers?	0.79	0.71	0.50
TASK				
G2IOPIN	To what degree do you and your coworkers have diverging opinions about the work being done?	1.00*	0.76	0.58
G3IIDEA	How much conflict about work ideas exists between you and your coworkers?	1.12	0.85	0.72
G5IWRKDO	How often do you and your coworkers disagree about what things should be done?	1.19	0.91	0.82
G9IWRK	To what extent do you and your coworkers have disagreements about work?	1.18	0.90	0.81
PROCESS				
G6IWHO	How often do you disagree with your coworkers about who should do what?	1.00*	0.86	0.74
G8ITASK	How frequently do you disagree with your coworkers about the way to complete a task?	0.97	0.83	0.69
G11DELG	How much conflict do you have with your coworkers about delegation of tasks on your nursing unit?	0.98	0.85	0.72
	Chi-squared (*df*; p)	143.26 (27; ≤0.001)		
	CFI; TLI	0.98; 0.99		
	RMSEA	0.09		

Notes. $N = 602$, all parameter estimates statistically significant, $p < 0.001$. Correlations for latent variables were: Relationship → Task = 0.90, Relationship → Process = 0.86, Task → Process = 0.96. *Fixed to equal 1.0.

To be able to test the hypothesized structural model, it was important to discriminate between the three types of conflict. From a theoretical standpoint it was reasonable to expect that the constructs overlapped, particularly the task and process items, which captured disagreements about work. No psychometric evaluation of a three-factor structure has been published. However, using a 6-item scale to measure individual involvement in task (4 items) and relationship conflict (2 items), Hobman et al. (2003) conducted a principal component factor analysis with varimax (oblique) rotation and found some support for a two-factor structure with one item loading on both factors. The correlation between task and relationship conflict was statistically significant ($r = 0.49$) (Hobman et al., 2003). No published studies have used the *Individual Conflict Scale* in a structural equation modelling context. To examine further the

measurement model of the *Individual Conflict Scale*, additional analyses were conducted prior to confirming a final structure (see Appendix F).

5.6.2   CFA of the Task and Relationship Subscales

A final confirmatory factor analysis was conducted with the 8 items from the relationship and task subscales and one cross-loading. The fit indices for the two-factor structure were: $\chi^2_{(15)} = 28.13$, $p < 0.001$; CFI = 1.0, TLI = 1.0, and RMSEA = 0.04. Table 5.9 lists the parameter estimates for each latent variable and Figure 5.4 depicts the specification of the final two-factor model. All of the standardized parameter estimates were greater than 0.78, with the exception of G10IANGR. The R-squared values ranged from 0.45 to 0.92. The residual correlations were inspected (ranging from -0.04 to 0.03). There were no modification indices greater than 10.0. The correlation between task and relationship conflict was 0.89 ($p < 0.001$) and the item-to-item correlations ranged from 0.49 to 0.88. Given the overall goodness-of-fit indices, the overall aim to achieve model parsimony, and consideration of available theory, an 8-item two-factor structure with one cross-load was accepted as a suitable measurement structure for the *Individual Conflict Scale*.

Table 5.9   CFA Results for the Individual Conflict Scale with a Two-factor Solution

Variable name	Question	Two-factor model			
		B	SE B	β	R^2
RELATIONSHIP					
G7ITENS	How much tension is there between you and your coworkers?	1.00*	0.02	0.96	0.92
G1IFRIC	How much friction is there between you and your coworkers?	0.95	0.00	0.91	0.82
G4IPERS	How much are personality clashes evident between you and your coworkers?	0.88	0.02	0.84	0.71
G10IANGR	How often do you get angry with your coworkers?	0.41	0.11	0.39	0.45[a]
TASK					
G5IWRKDO	How often do you and your coworkers disagree about what things should be done?	1.00*	0.00	0.89	0.79
G2IOPIN	To what degree do you and your coworkers have diverging opinions about the work being done?	0.87	0.03	0.78	0.60
G3IIDEA	How much conflict about work ideas exists between you and your coworkers?	0.97	0.02	0.86	0.75
G9IWRK	To what extent do you and your coworkers have disagreements about work?	1.00	0.02	0.89	0.80
G10IANGR	How often do you get angry with your coworkers?	0.33	0.11	0.30[b]	**
	Chi-squared (*df*; *p*)	28.13 (15; ≤0.01)			
	CFI; TLI	0.998; 0.999			
	RMSEA	0.04			

Notes. $N = 602$, all parameter estimates statistically significant, $p < 0.001$ unless otherwise specified. Correlation of Relationship → Task = 0.89.
*Fixed to equal 1.0.
[a]Combined R^2; [b]$p < 0.01$; **Indicator R^2 is reported for intended latent variable.

Figure 5.4   Final Measurement Model for the Two-factor Individual Conflict Scale

λ standardized parameters for relationships between the latent factor and the observed variables, $p < 0.001$.

λ standardized parameters for relationship between the latent factor and the observed variable that crossloaded, $p < 0.01$.

5.7 Measurement Model for the Endogenous Variable: Burnout

The hypothesized measurement model for the Maslach Burnout Inventory (MBI) was specified according to prior theory and evidence (Beckstead, 2002; Maslach, Jackson, & Leiter, 1996; Schaufeli, Bakker, Hoogduin, Schaap, & Kladler, 2001). The MBI Health Services Survey (HSS) consists of three latent variables (factors), which were composed with several indicators: emotional exhaustion (EE) (9 items), depersonalization (DP) (5 items), and personal accomplishment (PA) (8 items). Five items that represent the cynicism (CY) latent variable, which was part of the MBI-General Survey, were also included in the study. The factor structure first examined was a four-factor CFA model with 27 indicators. Table 5.10 provides the parameter estimates of the indicators that were loaded onto each latent variable and summarizes the model fit. Except for the TLI, the overall goodness-of-fit indices suggested that the four-factor model did not fit the data well, $\chi^2_{(103)} = 1096.62$, $p < 0.001$, CFI = 0.86, TLI = 0.95, and RMSEA = 0.13. Inspection of the residual correlations (ranging from -0.24 to 0.19) and modification indices (ranging from 10.02 to 158.46) indicated localized points of ill fit in the solution. Appendix E5 provides the polychoric correlation matrix for the items in this measurement model.

Table 5.10   CFA Results for the Maslach Burnout Inventory with Four-factor and Three-factor Solutions

Variable name	MBI Item No.	Question	Four-factor model			Three-factor model		
			B	β	R^2	B	β	R^2
EMOTIONAL EXHAUSTION								
B1EE	1	Drained	1.00*	0.76	0.57	0.97	0.79	0.63
B2EE	2	Used up	1.03	0.78	0.60	1.00*	0.82	0.66
B3EE	3	Fatigued	1.06	0.80	0.64	1.00	0.81	0.66
B6EE	6	Work strain	0.89	0.67	0.45	0.74	0.61	0.37
B10EE	8	Burned out	1.12	0.85	0.72	1.03	0.84	0.71
B15EE	13	Frustrated	1.00	0.76	0.57	0.91	0.74	0.55
B16EE	14	Work hard	0.80	0.61	0.37	0.76	0.62	0.38
B18EE	16	People stressful	0.91	0.69	0.47		removed	
B25EE	20	End of rope	1.08	0.82	0.67	0.98	0.80	0.64
DEPERSONALIZATION								
B5DP	5	Impersonal	1.00*	0.69	0.47	0.88	0.69	0.48
B12DP	10	Callous	1.17	0.80	0.64	1.00*	0.79	0.63
B13DP	11	Hardening	1.21	0.83	0.69	1.06	0.84	0.70
B17DP	15	Not care	1.01	0.69	0.48	0.85	0.67	0.45
B27DP	22	Patients blamed	0.81	0.55	0.31	0.70	0.55	0.31
PERSONAL ACCOMPLISHMENT								
B4PA	4	Understand patients	1.00*	0.28	0.08	0.50	0.38	0.14
B7PA	7	Deal with problems	1.93	0.55	0.30	0.81	0.61	0.37
B11PA	9	Positive influence	1.60	0.45	0.20	0.65	0.49	0.24
B14PA	12	Energetic	2.71	0.77	0.59		Removed	
B19PA	17	Create atmosphere	2.30	0.65	0.42	1.00*	0.75	0.56
B20PA	18	Exhilarated	1.66	0.47	0.22	0.68	0.52	0.26
B21PA	19	Accomplish	2.43	0.69	0.47	0.95	0.71	0.51
B26PA	21	Deal calmly	1.96	0.55	0.31	0.78	0.59	0.34
CYNICISM								
B8CY	8	Less interested	1.00*	0.92	0.85		Removed	
B9CY	9	Less enthusiastic	1.02	0.94	0.89		Removed	
B22CY	13	Not be bothered	0.60	0.55	0.31		Removed	
B23CY	14	Cynical	0.84	0.77	0.59		Removed	
B24CY	15	Doubt	0.88	0.81	0.65		Removed	
		Chi-squared (*df*; *p*)	1096.62 (103; ≤0.001)			462.53 (64, ≤0.001)		
		CFI; TLI	0.86; 0.95			0.92; 0.95		
		RMSEA	0.13			0.10		

Notes. $N = 603$, all parameter estimates are significant, $p < 0.001$. B = Unstandardized parameter estimates; β = Standardized parameter estimates. Correlations of latent variables for the four-factor model were: EE → DP = 0.72; EE → PA = -0.42, EE → CY = 0.77; PA → DP = -0.49; DP → CY = 0.75; PA → CY = -0.47. Correlations for the latent variables for the three-factor model were: EE → DP = 0.71; EE → PA = -0.26, PA → DP = -0.46.
*Fixed to equal 1.0.

The factor structure was respecified according to the original three-factor model for the MBI-HSS with items B14PA (*energetic* indicator for personal accomplishment) and B18EE (*people stressful* indicator for emotional exhaustion) removed as suggested by Maslach, Jackson, and Leiter (1996). Table 5.11 provides the parameter estimates for the 20 indicators that were loaded onto the EE, DP, and PA latent variables. Each of the overall goodness-of-fit indices

suggested that the three-factor model fit the data marginally, $\chi^2_{(64)} = 462.53$, $p < 0.001$, CFI = 0.92, TLI = 0.95, and RMSEA = 0.10. Inspection of the residual correlations (ranging from -0.18 to 0.16) and modification indices (ranging from 10.61 to 60.39) indicated localized points of ill fit in the solution.

After considering the model fit of a separate CFA for each latent variable (i.e., EE, DP, and PA) and models with variation in the number of factors (i.e., one-factor and two-factor) the source of model misspecification was attributed to incorrect designation of the relationships between indicators and the latent variables. Guided by prior evidence of the psychometric evaluation of the MBI-HSS (Beckstead, 2002) and theory (Maslach, 1982; Schaufeli, Maslach, & Marek, 1993), the model was respecified. In consideration of the residual correlations (values ≥ |0.10|), the largest modification indices (values ≥ 10.0), and the largest value for the expected parameter change (EPC), a systematic process was followed to respecify the model (e.g., allow an indicator to load on two or more factors) (Brown, 2006). For example, the three-factor model without item B14PA and B18EE was respecified so that indicator B6EE loaded on its intended latent variable (i.e., EE latent variable) and the DP latent variable (modification index = 63.39 and expected parameter change = 0.48).

The overall goodness-of-fit indices for this three-factor model with one cross-load (i.e., B6EE loading on DP) suggested better fit although the values were still not within the recommended ranges ($\chi^2_{(64)} = 406.22$, $p < 0.001$, CFI = 0.93, TLI = 0.96, and RMSEA = 0.09), the residual correlations ranged from -0.16 to 0.16, and the modification indices ranged from 12.91 to 28.98. The χ^2 statistic was used to statistically compare the fit of the model with one cross-loading with the original model (Muthen & Muthen, 2007). The difference test was statistically significant ($\Delta\chi^2_{(1)} = 53.93$, $p < 0.001$), indicating that the three-factor model with one cross-load provided significantly better fit to the data; however, the overall fit was still marginal. This process of allowing indicators to load onto two or more factors continued serially by selecting the largest value for the modification indices and expected parameter changes until a model that demonstrated acceptable fit was identified.

The final model that fit the data reasonably well was a 20-item three-factor model (excluding B14PA and B18EE) and 8 indicators loading on two or more factors ($\chi^2_{(68)} = 320.77$, $p < 0.001$, CFI = 0.95, TLI = 0.97, and RMSEA = 0.08, residual correlations ranging from -0.16 to 0.15 and no MI greater than 15. The three-factor model with 8 cross-loadings was a statistically significant better fit than the original three-factor model with no cross loadings ($\Delta\chi^2_{(7)} = 131.89$, $p < 0.001$). Table 5.11 lists the parameter estimates for indicators that loaded onto each latent variable and Figure 5.5 depicts the specification of the final three-factor model. A comparison of the model fit indices for the three and four factor models is found in Table 5.12.

Table 5.11   CFA Results for the Maslach Burnout Inventory with a Three-factor Solution and 8 Cross-loadings

Variable name	Question	Three-factor model				Notes
		B	SE B	β	R^2	
EMOTIONAL EXHAUSTION (EE)						
B2EE	Used up	1.00[*]	0.00	0.83	0.69	
B1EE	Drained	0.98	0.03	0.81	0.66	
B3EE	Fatigued	1.00	0.02	0.83	0.70	
B6EE	Work strain	0.23	0.05	0.19	0.39[a]	
B10EE	Burned out	0.97	0.03	0.81	0.73[a]	
B15EE	Frustrated	0.74	0.03	0.61	0.55[a]	
B16EE	Work hard	0.77	0.03	0.64	0.41	
B25EE	End of rope	0.62	0.05	0.51	0.63[a]	
	Added Cross-loadings for EE					
B4PA	Understand patients	0.17	0.05	0.14	**	PA indicator
B13DP	Hardening	0.23	0.05	0.19	**	DP indicator
B17DP	Not care	-0.28	0.08	-0.24	**	DP indicator
DEPERSONALIZATION (DP)						
B12DP	Impersonal	1.00[*]	0.00	0.80	0.65	
B5DP	Callous	0.86	0.04	0.69	0.48	
B13DP	Hardening	0.81	0.06	0.65	0.61[a]	
B17DP	Not care	1.10	0.08	0.89	0.59[a]	
B27DP	Patients blamed	0.69	0.05	0.55	0.31	
	Added Cross-loading for DP					
B6EE	Work strain	0.61	0.06	0.49	**	EE indicator
B25EE	End of rope	0.46	0.06	0.37	**	EE indicator
B26PA	Deal calmly	-0.19	0.06	-0.15	**	PA indicator
B15EE	Frustrated	0.24	0.05	0.19	**	EE indicator
PERSONAL ACCOMPLISHMENT (PA)						
B19PA	Create atmosphere	1.00[*]	0.00	0.75	0.56	
B4PA	Understand patients	0.63	0.06	0.48	0.22[a]	
B7PA	Deal with problems	0.82	0.06	0.62	0.38	
B11PA	Positive influence	0.66	0.05	0.49	0.24	
B20PA	Exhilarated	0.68	0.06	0.51	0.26	
B21PA	Accomplish	0.95	0.06	0.72	0.51	
B26PA	Deal calmly	0.59	0.07	0.45	0.28[a]	
	Added Cross-loadings for PA					
B10EE	Burned out	-0.21	0.04	-0.16	**	EE indicator
Chi-squared (*df*; *p*)		320.77 (66; ≤0.001)				
CFI; TLI		0.95; 0.97				
RMSEA		0.08				

Note. $N = 603$, all parameter estimates statistically significant, $p \leq 0.01$ unless otherwise specified. Correlations for the burnout latent variables were: EE → DP = 0.59; EE → PA = -0.16, PA → DP = -0.47.
[*]Fixed to equal 1.0.
[a]Combined R^2; **Indicator R^2 is reported for intended latent variable.

Table 5.12   Summary of the CFAs for the Maslach Burnout Inventory

Model	χ^2	df	CFI	TLI	RMSEA	Residual correlations range
Four factor model (27 items) – EE, DP, PA, CY	1096.62	103	0.86	0.95	0.13	-0.24 to 0.19
Three factor model (20 items) – EE, DP, PA	462.53	64	0.92	0.95	0.10	-0.18 to 0.16
Three factor model (20 items) – EE, DP, PA with 8 cross loadings	320.77	68	0.95	0.97	0.08	-0.16 to 0.15

Note. $N = 603$ for all models; χ^2 and *df* were based on WLSMV estimation; EE = emotional exhaustion, DP = depersonalization, and PA = personal accomplishment.

Figure 5.5   Measurement Model for the Three-factor MBI

Path diagram showing three latent factors (Emotional Exhaustion, Depersonalization, Personal Accomplishment) with observed indicators B2EE, B1EE, B3EE, B6EE, B10EE, B15EE, B16EE, B25EE (error terms ε₁–ε₈); B5DP, B12DP, B13DP, B17DP, B27DP (ε₉–ε₁₃); and B4PA, B7PA, B11PA, B19PA, B20PA, B21PA, B26PA (ε₁₄–ε₂₀).

λ standardized parameters for relationships between the latent factor and the observed variables, $p \le 0.01$.

λ standardized parameters for relationships between the latent factor and the observed variables that cross-loaded, $p \le 0.01$.

The theory underpinning the MBI was reviewed to determine whether the respecified cross-loadings were reasonable. Upon inspection of the three items that cross-loaded on the EE factor, two were original items from the depersonalization factor (B13DP – *hardening* and B17DP – *not care*) and one represented the personal accomplishment factor (B4PA – *understand patients*). These depersonalization items represent some of the feelings or thoughts that may result from being emotionally overextended. Similarly, when individuals' emotional resources are depleted they may be less empathic toward patients. Three items from the emotional exhaustion factor (B6EE – *work strain*, B25EE – *end of rope*, and B15EE – *frustrated*) and one item from the PA factor (B26PA – *deal calmly*) cross-loaded onto the depersonalization factor. When individuals feel discouraged and exhausted they may distance themselves from others by developing indifferent or callous attitudes. Individuals feeling this way may also feel frustrated and stressed in their work, as displayed by the items from the emotional exhaustion factor. At the same time, individuals having negative or callous attitudes may not feel that they deal with emotional problems in a calm manner (Maslach, 1982). Finally, for the personal accomplishment factor, one additional item from the emotional exhaustion factor (B10EE – *burned out*) was cross-loaded. This item represents a general feeling of being "burned out" that may result from a reduced sense of personal competence and efficacy. In other words, some of the thoughts and feelings that accompany being emotionally overextended may result in attitudinal changes that result in feelings of inadequacy in the ability to provide care (Maslach, 1982). Accordingly, it would make sense that the aforementioned items could represent the emotional exhaustion, depersonalization and personal accomplishment constructs as identified by significant parameter estimates that were cross-loaded on these three factors. The final measurement model for the MBI-HSS was a three-factor structure with 20 items and 8 cross-loads.

5.8   Examination of Missing Data for the Study Variables

Given the iterative nature of the modelling process, the examination of missing data occurred during the initial data screening process as well as during the testing of the measurement models for the study variables. As previously indicated, the work values attribute was the only construct that required the use of a scale to measure *actual* relational diversity. Eighty-six percent of the respondents (*n* = 518) completed all the items of the *Contemporary Work Values Scale* and 66 respondents (10.9%) had a missing value for only one of the items.

133

Based on the findings of several factor analyses the structural model with the best fit was a one-factor structure with 16 indicators. Ninety-six percent of the respondents ($n = 576$) completed the 16 items of the *Contemporary Work Values Scale* and 25 respondents (4.1%) had a missing value for only one of the items (see Table 5.13). To measure *perceived* relational diversity, the only attribute that required the use of more than one item was work values. Missing items on the *perceived* diversity variables were minimal and within the normally acceptable range (less than 5.0%) (see Table 5.13). This was also the case with the measures used to assess the mediator conflict variables, that is, the *Intragroup Conflict Scale* and the *Individual Conflict Scale*. Of the 603 respondents that completed the survey, 571 to 582 (94.7% to 96.5%) completed the various MBI items with slight differences observed for the subscales (see Table 5.13). For additional information about the process followed to handle the missing data see Chapter 4 (pages 93 and 94).

Table 5.13   Frequency of Missing Data for the Study Variables

Variable	Frequency (%)			
	Complete data	1 Item missing	More than 1 Item missing[a]	Total missing
ACTUAL DIVERSITY				
Age	585 (97.0)	18 (3.0)	0	18 (3.0)
Education	602 (99.8)	1 (0.2)	0	1 (0.2)
Ethnicity/Race	598 (99.2)	5 (0.8)	0	5 (0.8)
Work Values	603 (100)	0 (0)	0	0 (0)
CONTEMPORARY WORK VALUES SCALE				
Revised 16-item	576 (95.5)	25 (4.1)	2 (0.3)	27 (4.4)
PERCEIVED DIVERSITY ITEM/SCALE				
Age	600 (99.5)	3 (0.5)	0	3 (0.5)
Education	602 99.8)	1 (0.2)	0	1 (0.2)
Ethnicity/Race	601 (99.7)	2 (0.3)	0	2 (0.3)
Work Values	596 (98.8)	6 (1.0)	1(0.2)	7 (1.2)
MASLACH BURNOUT INVENTORY (MBI)				
Emotional Exhaustion Subscale	571 (94.7)	28 (4.6)	4 (0.7)	32 (5.3)
Depersonalization Subscale	582 (96.5)	18 (3.0)	3 (0.5)	21 (3.5)
Personal Accomplishment Subscale	576 (95.5)	23 (3.8)	4 (0.8)	27 (4.6)
INTRAGROUP CONFLICT SCALE				
Relationship Conflict	589 (97.7)	12 (2.2)	1 (0.2)	13 (2.4)
Task Conflict	597 (99.0)	4 (0.7)	2 (0.4)	6 (1.1)
INDIVIDUAL CONFLICT SCALE				
Relationship Conflict	601 (99.7)	1 (0.2)	1 (0.2)	2 (0.4)
Task Conflict	594 (98.5)	8 (1.3)	1 (0.2)	9 (1.5)

Note. N = 603.
[a]Maximum number missing is 4 items, except for the *Intragroup* and *Individual Conflict Scales*, which had 1 person missing 11 and 12 items, respectively.

In preparation for the evaluation of the structural models, the study variables were examined to determine the incidence and pattern of missing data using the M*plus* 5.1 software program. No variables of concern were identified and no prominent missing data patterns emerged (see Table 5.14). The missing data were either missing completely at random (MCAR) or missing at random (MAR). The proportion of data present for covariance coverage ranged from 0.96 to 1.00 for the MBI scale and 0.99 to 1.00 for all other scales, meaning all the variables and pairs of variables had 96% or more data present for analysis. The percentage of missing data, at $\leq 4\%$, was within the acceptable range of no more than 5%.

Table 5.14   Summary of Missing Data Patterns

Scale	Total # of Patterns	Missing Data Pattern Frequency	
		Less Than or Equal to 5 Respondents	6 to 10 Respondents
Contemporary Work Values (16-item)	13	13	0
Perceived Work Values Scale	3	3	0
Intragroup Conflict Scale (2 factor)	10	10	0
Individual Conflict Scale (2 factor)	5	5	0
Maslach Burnout Inventory (3 factor)	27	24	3

5.9   Descriptive Statistics of the Exogenous Variables: Relational Diversity

Relational diversity was measured with items about "*actual*" diversity and "*perceived*" diversity in a workgroup. This section provides the descriptive statistics for the diversity variables and compares group differences between Sites A and B (see Table 5.15).[22]

5.9.1   *Actual* Diversity

To measure *actual* diversity in age, education, and ethnicity/race, the respondents were asked one question for each attribute. All diversity scores were scaled such that a large value referred to greater diversity (i.e., focal individuals with higher age D-scores were more different from others within their workgroup, than were those with lower age D-scores) (Tsui & Gutek, 1999). Observed age in years was treated as a continuous variable resulting in D-scores that ranged from 8.98 to 29.25 (see Appendix G1). Highest level of education and ethnicity/race were treated as categorical. Accordingly, the education D-scores ranged from 0.56 to 0.98 (see Appendix G2) and ethnicity/race D-scores ranged from 0.50 to 1.00 (see Appendix G3). Site A and Site B were significantly different on the *actual* educational diversity and *actual* ethnic/racial diversity variables (see Table 5.15).

---

[22]   The appropriate statistic for bivariate analysis was chosen by whether there was a significant amount of skew present, which was determined by dividing the skewness value by the standard error of skewness. Values above or below ± 1.96 were considered significantly skewed ($p = 0.05$) and thus required a nonparametric test, such as the Mann Whitney U Test (Munro, 2001).

Table 5.15   Descriptive Statistics and Hospital-based Group Comparisons of the Study Variables

Variable	Mean	SD	Median Site A	Median Site B	Median Total sample	Skewness[a]	Kurtosis	Between group comparison statistic
EXOGENOUS VARIABLES								
Actual Diversity								
Age[b]	14.8	3.9	14.4	14.0	14.2	0.8*	0.2*	Z = -0.97
Education[c]	0.8	0.1	0.8	0.7	0.8	0.0	-0.8*	Z = -5.05***
Ethnicity/race[d]	0.8	0.2	0.7	0.8	0.7	0.1	-1.6*	Z = -3.29***
Work Values	0.5	0.1	0.4	0.4	0.4	1.2*	2.0*	Z = -1.17
Contemporary Work Values								
Total score (16 item)	53.1	5.7	52.0	53.0	53.0	0.0	-0.4*	Z = -0.25
Average total score (16 item)	3.3	0.4	3.3	3.3	3.3	0.0	-0.4*	Z = -0.14
Perceived Diversity								
Age[e]	3.5	1.3	4.0	4.0	4.0	-0.1	-0.4*	Z = -1.58
Education[c]	3.0	1.4	3.0	3.0	3.0	0.2	-0.8*	Z = -0.59
Ethnicity/race[f]	3.9	1.3	4.0	4.0	4.0	-0.4*	-0.3	Z = -0.07
Work Values[c]	11.8	4.2	11.0	12.0	12.0	0.3*	-0.1	Z = -1.31
MEDIATOR VARIABLES								
Intragroup Conflict Scale								
Relationship[c]	12.8	4.2	11.0	12.0	12.0	0.7*	0.3	Z = -3.13***
Task[f]	10.1	3.2	9.0	10.0	9.0	0.6*	0.0	Z = -2.98***
Individual Conflict Scale								
Relationship[c]	6.9	2.5	6.0	7.0	7.0	1.3*	3.0*	Z = -1.49
Task[c]	7.7	2.4	8.0	8.0	8.0	0.6*	0.8*	Z = -2.08**
ENDOGENOUS VARIABLES								
Maslach Burnout Inventory[g]								
Emotional Exhaustion	22.4	10.9	22.0	21.0	22.0	0.3*	-0.5*	Z = -0.12
Depersonalization	5.7	5.6	4.0	5.0	4.0	1.2*	1.1*	Z = -0.57
Personal Accomplishment	37.1	6.3	38.0	38.0	38.0	-0.7*	0.9*	Z = -0.31

Note. N = 603 unless otherwise specified.
[a]The measure of skewness and kurtosis was divided by the standard error of skewness and kurtosis, respectively. This calculation resulted in a number interpreted in terms of the normal curve (z-score). Values above +1.96 or below -1.96 were considered significant at p = 0.05 (Munro, 2001). [b]Total missing = 18. [c]Total missing = 1. [d]Total missing = 5. [e]4 items, subscales total; Total missing = 3. [f]Total missing = 2. [g]Total missing = 4 on all subscales, except depersonalization which had 3 missing. Values reported for subscale totals.
* Significantly skewed or kurtotic based on measure of skewness and kurtosis (z-score). The Mann Whitney U statistic was used to compare group responses for Site A and Site B.
**p < 0.05. ***p < 0.01.

To calculate a D-score for *actual* work values diversity, the respondents were asked 35-items using the *Contemporary Work Values Scale*. For this instrument, a 4-point Likert scale (1 = *strongly disagree* and 4 = *strongly agree*) was used. Higher scale scores indicated stronger contemporary work values. Based on the findings from several factor analyses the measurement model with the best fit was a one-factor structure with 16 indicators (possible range = 16 to 64). The 16 items were summed to create a total score. The mean of the total score for the 16-item

scale was 53.1 ($SD = 5.7$, $n = 603$) (see Table 5.15) and the possible score values ranged from 32 to 64. Because the total score did not take into consideration the number of items missing for each respondent, an average of the total score (herein referred to as the average total score) was calculated for each respondent. To compute the average total score for the CWV scale, a criterion was established that at least 14 items (88% of items answered) had to be completed for the case to be included in the analyses. The average total score was then used to calculate the D-score for the work values attribute. As previously indicated, 95.5% ($n = 576$) of respondents answered all 16 items and 100% ($n = 603$) answered at least of 14 items. Thus, all respondents ($n = 603$) were included in the analyses. The mean of the average total score for the 16-item scale was 3.3 ($SD = 0.4$, $n = 603$) (see Table 5.15) and the scores ranged from 2.0 to 4.0 (see Appendix G4). The D-scores for work values, which were treated as a continuous variable, ranged from 0.29 to 1.24 (see Appendix G5). The *actual* work values diversity scores did not significantly differ between Sites A and B (see Table 5.15).

5.9.2   *Perceived* Diversity

One item for each variable was used to measure *perceived* diversity in age, education, and ethnicity/race. *Perceived* diversity in work values was measured with 4 items. All items used a 6-point Likert scale where 1 = *not at all similar* and 6 = *very similar*. Scale items were reverse scored so that a higher score indicated a greater degree of *perceived* diversity. A criterion was established that at least three of the four items (75%) were necessary for the case to be included in the analyses. Consequently, only one case was excluded (see Table 5.13). The items were summed to create a total score (possible score range = 3 to 24). The mean for *perceived* age diversity was 3.5 ($SD = 1.3$, range = 1 to 6), for education was 3.0 ($SD = 1.4$, range = 1 to 6), and ethnicity/race was 3.9 ($SD = 1.3$, range = 1 to 6) (see Table 5.13 and Appendices G6 to G8, respectively). The mean of the total score for the *perceived* diversity in work values variable was 11.8 ($SD = 4.2$) (see Table 5.15 and Appendix G9). Site A and Site B were not significantly different from each other on the *perceived* diversity variables (see Table 5.15).

5.10 Descriptive Statistics of the Mediator Variables: Interpersonal Conflict

This section provides the descriptive statistics for the mediator variables: individual perception of workgroup conflict and individual involvement in conflict. Group differences between responses from Site A and Site B respondents were examined.

5.10.1 Intragroup Conflict Scale

Using a 5-point scale (1 = *none* and 5 = *a lot*), the nurses were asked 12 items about their perceptions of relationship, task, and process disagreements occurring among members of their nursing unit (*Intragroup Conflict Scale*); however, only 9 items were retained as part of the final measurement model that was comprised of two factors. Higher scale scores indicated more conflict among members of the nursing unit. Conflict items in each subscale were summed to create a total score. The mean of the total score for the relationship conflict subscale (5 items, minimum of 4 items required) was 12.3 (*SD* = 4.2) (possible score range = 4 to 25) (see Table 5.15 and Appendix G10). This was slightly higher than the total score for the task conflict subscale (4 items, minimum 3 items required), which had a mean of 10.1 (*SD* = 3.2) (possible score range = 3 to 20) (see Table 5.15 and Appendix G11). Site A and Site B were statistically significantly different from each other for both intragroup relationship and task conflict.

5.10.2 Individual Conflict Scale

The nurses were asked 11 questions about their involvement in conflict with their coworkers (*Individual Conflict Scale*). The final measurement structure was comprised of two subscales, relationship and task conflict, with eight items and one item cross-loading. Higher scale scores indicated a higher level of conflict. Only one item was allowed to be missing for the case to be included in the analyses. Based on a 5-point scale (1 = *none* and 5 = *a lot*), the possible score range for relationship conflict was 3 to 20 and task conflict was 4 to 25. The relationship and task conflict scores had means of 6.9 and 7.7, respectively (*SD* = 2.4 and 2.5, respectively) (see Table 5.15 and Appendix G12 and G13). The means for the individual conflict subscales were slightly lower than the intragroup conflict scores. Site A and Site B were significantly different from each other on the individual task conflict measure.

5.11   Descriptive Statistics of the Outcome Variable: Burnout

This section provides the descriptive statistics and group differences for the outcome variable burnout. The final measurement structure resulted in a model with three factors (emotional exhaustion, depersonalization, and personal accomplishment) and 20 items with 8 cross-loadings. The *Maslach Burnout Inventory* uses a 7-point scale (0 = *never* and 6 = *every day*). Excluded from the analyses were individuals with more than one item missing. High scores on the emotional exhaustion and depersonalization subscales and low scores on the personal accomplishment subscale are suggestive of a high degree of burnout (i.e., the upper third of the normative distribution). "*Average*" and "*low*" scores are represented by the middle third and lower third of the normative distribution, respectively (Maslach et al., 1996). Based on the established normative criteria for medical workers (see Table 4.4, page 88), the total scores for each burnout subscale in this study were within the average range (see Table 5.16). Table 5.15 shows the descriptive statistics for the burnout variables (also see Appendices G14 to G16). The mean of the total score for the emotional exhaustion subscale was 22.4 ($SD = 10.9$, $n = 599$). However, 34.6% of the nurses ($n = 207$) scored "*high*" (normative range 27 or more) on the emotional exhaustion subscale while 38.7% ($n = 232$) and 26.7% ($n = 160$) were within the "*low*" and "*average*" ranges, respectively. The total scores for the depersonalization subscale had a mean of 5.7 ($SD = 5.6$, $n = 600$). Almost two thirds (59.8%) of the nurses ($n = 359$) scored "*low*" (normative range 5 and less) on the depersonalization subscale while 19.5% ($n = 117$) and 20.6% ($n = 124$) were within the "*average*" and "*high*" ranges, respectively. The mean for the personal accomplishment subscale total scores was 37.1 ($SD = 6.3$, $n = 599$). On the personal accomplishment subscale, only one quarter (24.9%) of the nurses scored "*high*" (normative range 33 or less) while 37.9% ($n = 227$) and 37.2% ($n = 223$) were within the "*average*" and "*low*" ranges, respectively. Sites A and B were not significantly different from each other on the burnout scores.

Table 5.16   **Percentage of Nurses Classified as Having High, Moderate, and Low Levels of Burnout for Each Aspect of the MBI**

MBI subscales	Range of experienced burnout		
	Low (lower third)	Average (middle third)	High (upper third)
Emotional exhaustion	38.7%	26.7%	34.6%
Depersonalization	59.8%	19.5%	20.6%
Personal accomplishment	37.2%	37.9%	24.9%

5.12   Bivariate Statistics of the Study Variables

All the *perceived* diversity variables were statistically significantly, albeit very modestly correlated, with their corresponding *actual* diversity variable (e.g., *perceived* age diversity with *actual* age diversity $r = 0.17$), except for work values diversity, which was $r = -0.01$ (see Table 5.17). The low correlations between *actual* and *perceived* measures have been documented elsewhere (Riordan, 1997; Riordan & Holliday Wayne, 2008; Williams, Parker, & Turner, 2007). Correlations between the diversity variables and the burnout variables are found in Table 5.17. *Perceived* work values diversity had the largest correlations with the burnout variables ($r = -0.23$ to 0.19). Table 5.18 shows the correlations between the conflict variables and the diversity variables. *Perceived* educational diversity and *perceived* work values diversity were significantly correlated with relationship and task conflict. Age was the only "*actual*" diversity attribute significantly correlated with individual relationship conflict. Both intragroup conflict subscales were significantly correlated with emotional exhaustion, depersonalization, and personal accomplishment (see Table 5.19).

Table 5.17   Pearson Correlation Matrix for the Diversity and Burnout Latent Variables and the Observed Demographic Variables

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Emotional exhaustion	1.00														
2	Depersonalization	0.53	1.00													
3	Personal accomplishment	-0.13***	-0.46***	1.00												
4	*Perceived* age diversity	-0.01	-0.09	-0.02	1.00											
5	*Perceived* educational diversity	0.03	0.13**	-0.18***	0.32***	1.00										
6	*Perceived* ethnic/racial diversity	0.01	0.01	-0.03	0.22***	0.25***	1.00									
7	*Perceived* work values diversity	0.14***	0.19***	-0.23***	0.32***	0.38***	0.28***	1.00								
8	Age	-0.04	-0.14***	0.13***	0.20***	0.00	0.03	0.06	1.00							
9	Level of education	0.05	0.09	-0.09	-0.12**	-0.10*	-0.06	0.04	-0.43***	1.00						
10	Ethnicity/race	-0.08*	-0.10*	-0.12**	-0.01	-0.05	0.05	0.02	-0.04	0.13***	1.00					
11	Work values	-0.04	-0.17***	0.32***	0.00	-0.07	0.01	-0.08*	0.04	0.10*	0.13***	1.00				
12	*Actual* age diversity	-0.09*	-0.09*	0.11*	0.17***	-0.02	-0.06	-0.11**	0.17***	0.08	-0.10*	0.03	1.00			
13	*Actual* educational diversity	-0.04	-0.03	0.03	0.03	0.14***	0.05	0.04	-0.09*	-0.23***	0.02	-0.01	0.06	1.00		
14	*Actual* ethnic/racial diversity	-0.12**	-0.04	-0.10*	0.00	-0.03	0.15***	-0.02	-0.03	0.01	0.64***	0.17***	-0.10*	0.11**	1.00	
15	*Actual* work values diversity	0.01	0.10*	0.09*	-0.02	-0.06	0.06	-0.01	0.06	-0.11**	0.04	0.03	-0.04	0.04	0.03	1.00

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

Table 5.18   Pearson Correlation Matrix for the *Perceived* Diversity, *Actual* Diversity, and Conflict Latent Variables

		1	2	3	4	5	6	7	8	9	10	11	12
1	Individual relationship conflict	1.00											
2	Individual task conflict	0.89***	1.00										
3	Intragroup relationship conflict	0.64***	0.66***	1.00									
4	Intragroup task conflict	0.62***	0.75***	0.97***	1.00								
5	*Perceived* age diversity	0.03	0.03	0.05	0.03	1.00							
6	*Perceived* educational diversity	0.19***	0.17***	0.16***	0.14***	0.32***	1.00						
7	*Perceived* ethnic/racial diversity	0.08	0.07	0.14***	0.14***	0.22***	0.25***	1.00					
8	*Perceived* work values diversity	0.31***	0.36***	0.40***	0.43***	0.32***	0.38***	0.28***	1.00				
9	*Actual* age diversity	-0.10*	-0.06	-0.10*	-0.08	0.17***	-0.02	-0.06	-0.11***	1.00			
10	*Actual* educational diversity	0.03	0.03	0.00	0.00	0.03	0.14***	0.05	0.04	0.06	1.00		
11	*Actual* ethnic/racial diversity	-0.02	-0.04	0.00	0.02	0.00	-0.03	0.15***	-0.02	-0.10*	0.11**	1.00	
12	*Actual* work values diversity	0.04	0.08	0.01	0.07	-0.02	-0.06	0.06	-0.01	-0.04	0.04	0.03	1.00

*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

Table 5.19:   Pearson Correlation Matrix for the Conflict and Burnout Latent Variables

		1	2	3	4	5	6	7
1	Emotional exhaustion	1.00						
2	Depersonalization	0.51**	1.00					
3	Personal accomplishment	-0.12*	-0.45**	1.00				
4	Individual relationship conflict	0.31**	0.39**	-0.21**	1.00			
5	Individual task conflict	0.34**	0.41**	-0.21**	0.89**	1.00		
6	Intragroup relationship conflict	0.32**	0.25**	-0.07	0.64**	0.66**	1.00	
7	Intragroup task conflict	0.36**	0.28**	-0.08	0.62**	0.75**	0.97**	1.00

*$p < 0.01$. **$p < 0.001$.

5.13   Chapter Summary

This chapter provided the details of the measurement model specification of the exogenous, mediator, and endogenous latent variables. The *Contemporary Work Values Scale* was reduced to 16 items, which were subsequently summed and averaged to calculate a D-score for *actual* work values diversity. The *perceived* work values diversity variable had a measurement model that consisted of 4 items and each of the other exogenous attributes were measured with a single item. The measurement structure of the *Intragroup Conflict Scale* included two latent variables: relationship and task conflict. Similarly, the *Individual Conflict Scale* consisted of two factors: relationship and task conflict with the anger item cross-loading on both factors. The measurement model for the *Maslach Burnout Inventory* was a three-factor model with 20 items and 8 cross-loadings. The measurement models described in this chapter were used in the structural modelling portion of the analysis described in the next chapter.

6   STRUCTURAL EQUATION MODELLING FINDINGS

Following data preparation and confirmation of the measurement models of the study variables, the structural models were tested. This chapter describes the evaluation (i.e., fit and parameter estimates) of the six structural models that specified the direct and indirect effects of relational diversity on burnout as mediated by interpersonal conflict (see Table 6.1):[23]

- Model 1: *Actual* diversity → burnout

- Model 2: *Actual* diversity → **intragroup** conflict → burnout
  - Model 2a: *Actual* diversity → **intragroup** *relationship* conflict → burnout
  - Model 2b: *Actual* diversity → **intragroup** *task* conflict → burnout

- Model 3: *Actual* diversity → **individual** conflict → burnout
  - Model 3a: *Actual* diversity → **individual** *relationship* conflict → burnout
  - Model 3b: *Actual* diversity → **individual** *task* conflict → burnout

- Model 4: *Perceived* diversity → burnout

- Model 5: *Perceived* diversity → **intragroup** conflict → burnout
  - Model 5a: *Perceived* diversity → **intragroup** *relationship* conflict → burnout
  - Model 5b: *Perceived* diversity → **intragroup** *task* conflict → burnout

- Model 6: *Perceived* diversity → **individual** conflict → burnout
  - Model 6a: *Perceived* diversity → **individual** *relationship* conflict → burnout
  - Model 6b: *Perceived* diversity → **individual** *task* conflict → burnout

---

[23]   These models speak to the hypotheses delineated in Chapter 3; however, the components of the hypotheses have changed (i.e., the removal of process conflict and cynicism) because the measurement models did not permit further exploration of some hypotheses. As well, the numbering of the hypotheses was changed to establish continuity in the reporting of the models.

Table 6.1   Summary of Variables in Each Model

Study constructs	Instrument/item	Model 1	2	3	4	5	6
EXOGENOUS VARIABLES – RELATIONAL DIVERSITY							
Actual Age Diversity (DSAge)	D-score for Age	X	X	X			
Actual Educational diversity (DSEduc)	D-score for Education	X	X	X			
Actual Ethnic/racial diversity (DSEth)	D-score for Ethnicity/race	X	X	X			
Actual work values diversity (DSVal)	D-score for Work Values Contemporary Work Values Scale	X	X	X			
Perceived age diversity (PAge)	*Perceived* Age Diversity				X	X	X
Perceived educational diversity (PEduc)	*Perceived* Educational Diversity				X	X	X
Perceived ethnic/racial diversity (PEth)	*Perceived* Ethnic/racial Diversity				X	X	X
Perceived work values diversity (PVal)	*Perceived* Work Values Diversity Scale				X	X	X
MEDIATOR VARIABLES – INTERPERSONAL CONFLICT							
Relationship Conflict (REL CON)	Intragroup Conflict *Relationship* Subscale		X			X	
	Individual Conflict *Relationship* Subscale			X			X
Task Conflict (TSK CON)	Intragroup Conflict *Task* Subscale		X			X	
	Individual Conflict *Task* Subscale			X			X
ENDOGENOUS VARIABLES – BURNOUT							
Burnout	MBI – Emotional Exhaustion Subscale (EE)	X	X	X	X	X	X
	MBI – Depersonalization Subscale (DP)	X	X	X	X	X	X
	MBI – Personal Accomplishment Subscale (PA)	X	X	X	X	X	X

6.1   Overview of Methods

As explained in Chapter 4, the data were treated as non-normal, and the indicators for all of the observed variables, except for the *actual* diversity variables, were treated as ordered categorical (ordinal) latent variables for the analyses. The *actual* diversity variables were treated as continuous manifest variables and the *perceived* diversity variables were modelled as categorical latent variables. The M*plus* 5.1 software program with robust mean and variance adjusted weighted least squares (WLSMV) estimation was used for the structural equation modelling portion of the analyses. To evaluate model fit, the same criteria applied for the confirmatory factor analyses were applied: CFI $\geq$ 0.95, TLI $\geq$ 0.95, and RMSEA $\leq$ 0.08 with a preferred value of 0.06 being indicative of a well-fitting model (Brown, 2006; Hu & Bentler, 1999; Schumacker & Lomax, 2004).

A four-step process was used to test the mediation models (see pages 98 to 100). Given the number of variables included in the mediator model (and the possibility of interactions) (MacKinnon, 2008), single–mediator models were tested and reported separately (i.e., one mediator model for *relationship* conflict and one for *task* conflict). An omnibus model of mediation was estimated, which resulted in the same findings. All of the hypothesized pathways were included in the initial mediator analyses to determine nonsignificance of the total indirect effects. After nonsignificance was confirmed, these pathways were removed (e.g., *perceived* ethnic/racial diversity).

6.2 Organization of the Findings

In this chapter, the initial discussion of the findings for the *actual* relational diversity models (Models 1, 2, and 3) is followed by a discussion of the *perceived* relational diversity models (Models 4, 5, and 6). The analysis begins with a summary of the goodness-of-fit indices for the direct and indirect models. Next, the tests of the hypotheses are reported (e.g., values, direction, and significance of the parameter estimates), first for the direct effects and then for the indirect (mediation) effects. For example, the direct, unmediated paths between the *actual* diversity attributes and the three aspects of burnout (Condition 1) were estimated before the inclusion of *relationship* and *task* conflict into the model. Next, the significance of the indirect effects (Conditions 2, 3, and 4) was tested by including *relationship* and *task* conflict into the model. Once significance of these conditions was determined, the direct effect (*c'*) was compared with the overall direct effect (*c*). If mediation was established, the effect size of the total effect was calculated (see page 100).

6.3 The Direct and Indirect Effects of *Actual* Relational Diversity on Burnout

This section reports the findings of the examination of the four *actual* diversity attributes on emotional exhaustion, depersonalization, and personal accomplishment (Model 1 see Figure 6.1). Next, the conclusions of the four single–mediator models are presented. Model 2 tests **intragroup** *relationship* and *task* conflict as mediators of the association between *actual* diversity and burnout (see Figure 6.2 and Figure 6.3). Model 3 tests the mediator models with **individual** *relationship* and *task* conflict (see Figure 6.2 and Figure 6.3).

Figure 6.1   Model 1: The Effects of *Actual* Relational Diversity on Burnout

DSAge = *Actual* age diversity
DSEduc = *Actual* educational diversity
DSEth = *Actual* ethnic/racial diversity
DSVal = *Actual* work values diversity

EE = Emotional exhaustion
DP = Depersonalization
PA = Personal accomplishment
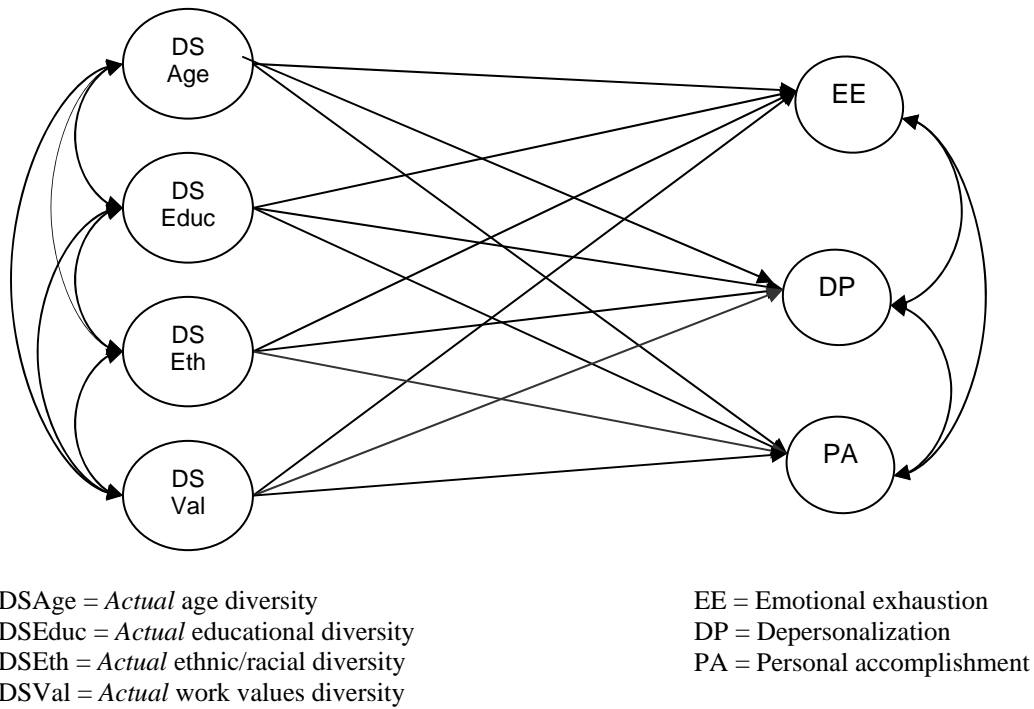
6.3.1   Model Fit

Table 6.2 summarizes the goodness-of-fit indices and total variance explained in the *actual* diversity models. Model 1 demonstrated acceptable fit with the data. The total variance explained for each endogenous latent variable was minimal, ranging from 2% to 3%. Model 2 hypothesized that the effects of each *actual* diversity attribute on the various aspects of burnout were mediated by **intragroup** *relationship* conflict (Model 2a, see Figure 6.2) and *task* conflict (Model 2b, see Figure 6.3). Model 3 examined the indirect effects of **individual** *relationship* conflict (Model 3a, see Figure 6.2) and *task* conflict (Model 3b, see Figure 6.3). All the mediator models demonstrated acceptable fit with the data, and the total variance explained ranged from 1% to 19% (see Table 6.2).

Table 6.2   Summary of the Goodness-of-Fit Indices and Total Variance Explained for the Effects of *Actual* Relational Diversity on Burnout[a]

Model	Fit indices	Total variance explained for endogenous latent variables
DIRECT EFFECT MODEL		
Model 1	$\chi^2_{(97)} = 388.22$, $p < 0.001$ CFI = 0.95 TLI = 0.97 RMSEA = 0.07	EE = 2% DP = 2% PA = 3%
SINGLE–MEDIATOR MODELS (INTRAGROUP CONFLICT)		
Model 2a	$\chi^2_{(116)} = 346.05$, $p < 0.001$ CFI = 0.97 TLI = 0.98 RMSEA = 0.06	EE = 12% DP = 9% PA = 4% Intragroup REL conflict = 1%
Model 2b	$\chi^2_{(118)} = 352.78$, $p < 0.001$ CFI = 0.96 TLI = 0.98 RMSEA = 0.06	EE = 15% DP = 10% PA = 4% Intragroup TSK conflict = 1%
SINGLE–MEDIATOR MODELS (INDIVIDUAL CONFLICT)		
Model 3a	$\chi^2_{(123)} = 400.09$, $p < 0.001$ CFI = 0.96 TLI = 0.98 RMSEA = 0.06	EE = 13% DP = 19% PA = 8% Individual REL conflict = 1%
Model 3b	$\chi^2_{(128)} = 414.10$, $p < 0.001$ CFI = 0.95 TLI = 0.97 RMSEA = 0.06	EE = 14% DP = 19% PA = 8% Individual TSK conflict = 1%

Notes. $N = 603$. WLSMV estimator. EE = Emotional exhaustion, DP = Depersonalization, PA = Personal accomplishment, REL = Relationship, and TSK = Task.

[a]Fit indices and total variance explained for the multiple–mediator models:

- *Actual* relational diversity on burnout as mediated by intragroup r*elationship* and t*ask* conflict, $\chi^2_{(120)} = 320.93$, $p < 0.001$, CFI = 0.97, TLI = 0.99, and RMSEA = 0.05; EE = 17%, DP = 11%, PA = 4%, intragroup *relationship* conflict = 1%, and intragroup *task* conflict = 1%.
- *Actual* relational diversity on burnout as mediated by individual r*elationship* and t*ask* conflict, $\chi^2_{(134)} = 383.34$, $p < 0.001$, CFI = 0.96, TLI = 0.98, and RMSEA = 0.06; EE = 14%, DP = 19%, PA = 8%, individual *relationship* conflict = 1%, and individual *task* conflict = 1%.

Figure 6.2   Model 2a and 3a: The Effects of *Actual* Relational Diversity on Burnout as Mediated by *Relationship* Conflict

DSAge = *Actual* age diversity
DSEduc = *Actual* educational diversity
DSEth = *Actual* ethnic/racial diversity
DSVal = *Actual* work values diversity

REL CON = *Relationship* conflict
(the model is the same for both
Intragroup and **Individual** conflict)

EE = Emotional exhaustion
DP = Depersonalization
PA = Personal accomplishment
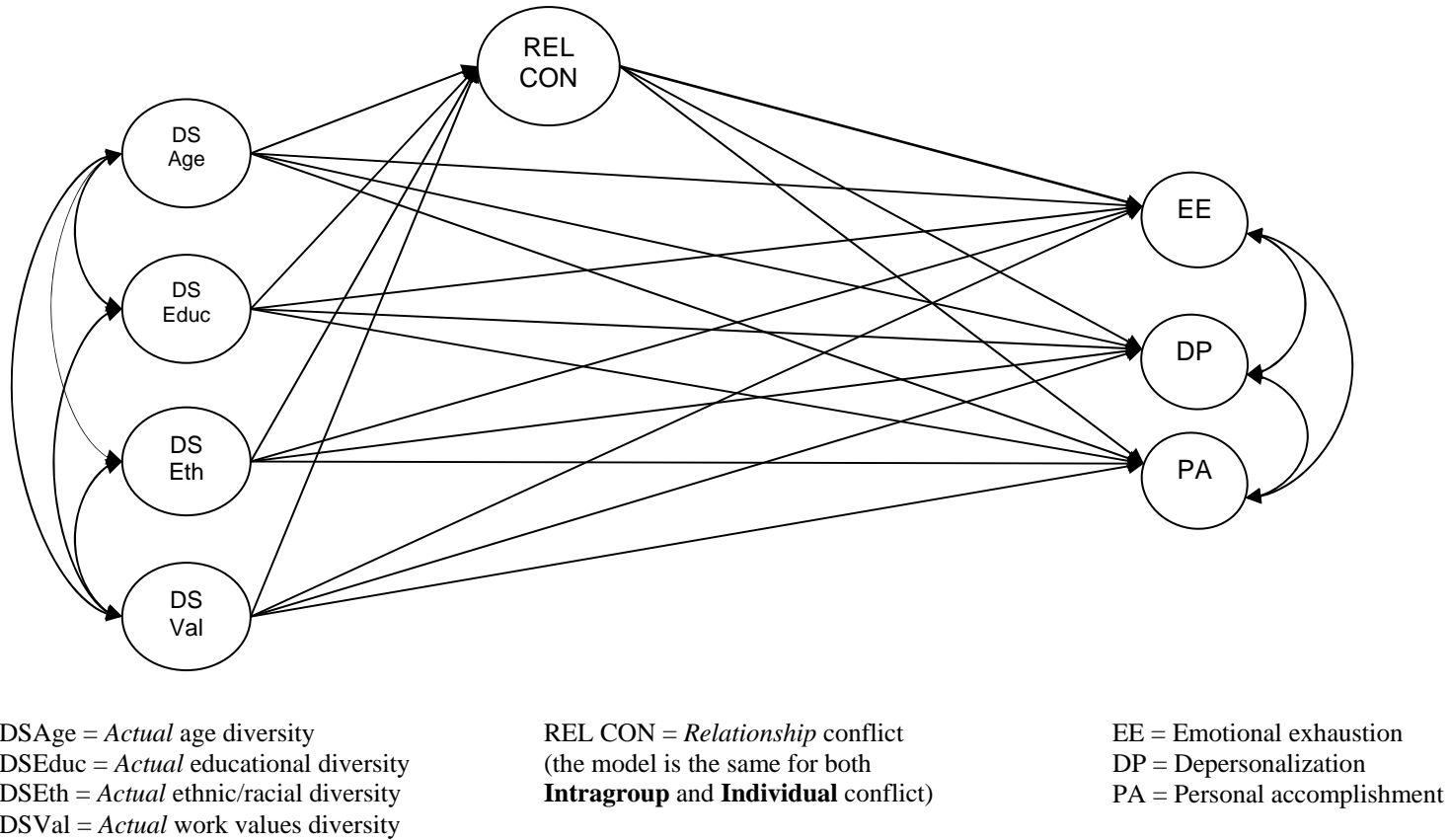
Figure 6.3   Model 2b and 3b: The Effects of *Actual* Relational Diversity on Burnout as Mediated by *Task* Conflict

DSAge = *Actual* age diversity
DSEduc = *Actual* educational diversity
DSEth = *Actual* ethnic/racial diversity
DSVal = *Actual* work values diversity

TSK CON = *Task* conflict
(the model is the same for both
Intragroup and **Individual** conflict)

EE = Emotional exhaustion
DP = Depersonalization
PA = Personal accomplishment
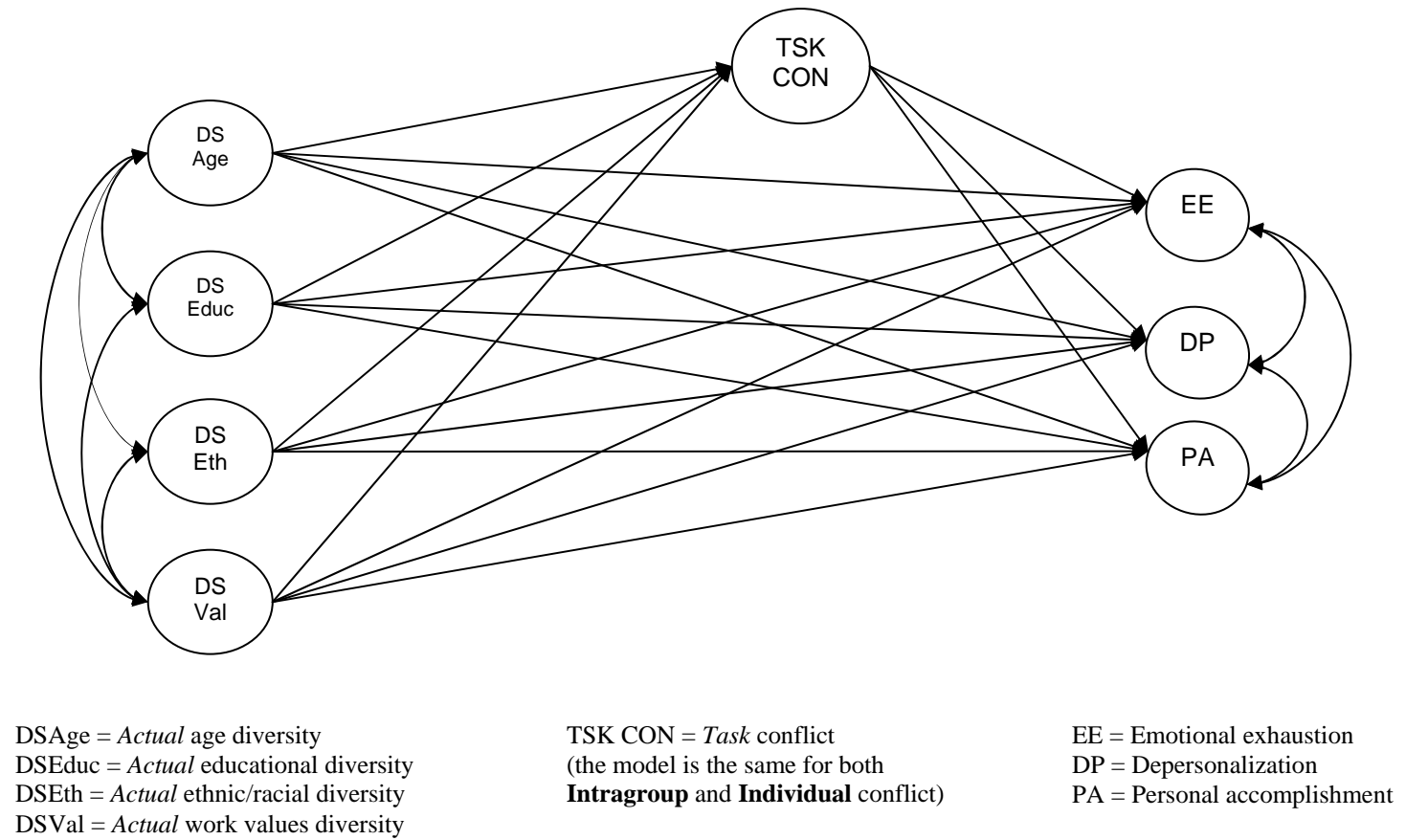
6.3.2 Model 1: The Direct Effects of *Actual* Relational Diversity on Burnout (Condition 1)

H1.1: *Actual age diversity between an individual and others within a workgroup is positively associated with EE and DP, and is negatively associated with PA.*

H1.2: *Actual educational diversity between an individual and others within a workgroup is positively associated with EE and DP, and is negatively associated with PA.*

H1.3: *Actual ethnic/racial diversity between an individual and others within a workgroup is positively associated with EE and DP, and is negatively associated with PA.*

For Hypotheses 1.1 to 1.3, *actual* ethnic/racial diversity on personal accomplishment ($\beta = -0.10$) was the only relationship that was statistically significant in the direction hypothesized (see Table 6.3). Nurses in workgroups who were different with respect to their ethnicity/race had a reduced sense of personal accomplishment, which is indicative of burnout; however, they did not experience feelings of being emotionally extended or displaying more negative, callous, or distant attitudes. Nurses who were different from their coworkers with respect to age and education did not experience more burnout relative to other members in the workgroup.

Table 6.3   **Unstandardized and Standardized Parameter Estimates for Model 1: The Overall Direct Effects of *Actual* Relational Diversity on Burnout**

Hypo-thesis	Latent variable path	B	β	Sign level (p)	95% CI (β) Lower	Upper	Hypothesis supported
H1.1	DSAge → EE	-0.02	-0.10	0.02	-0.19	-0.02	Rejected[a]
H1.1	DSAge → DP	-0.02	-0.10	0.04	-0.19	-0.01	Rejected[a]
H1.1	DSAge → PA	0.02	0.10	0.04	0.01	0.19	Rejected[a]
H1.2	DSEduc → EE	-0.19	-0.02	0.58	-0.11	0.06	Rejected
H1.2	DSEduc → DP	-0.18	-0.02	0.59	-0.11	0.06	Rejected
H1.2	DSEduc → PA	0.21	0.03	0.53	-0.06	0.12	Rejected
H1.3	DSEth → EE	-0.59	-0.12	0.01	-0.21	-0.04	Rejected[a]
H1.3	DSEth → DP	-0.27	-0.06	0.21	-0.15	0.03	Rejected
H1.3	DSEth → PA	-0.43	-0.10	0.04	-0.19	-0.01	Accepted
H1.4	DSVal → EE	0.03	0.01	0.90	-0.07	0.08	Rejected
H1.4	DSVal → DP	0.55	0.10	0.02	0.01	0.18	Accepted
H1.4	DSVal → PA	0.53	0.10	0.03	0.01	0.19	Rejected[a]

Note. $N = 603$, B = unstandardized parameter estimates, β = standardized parameter estimates, CI = confidence interval. Correlations among the exogenous manifest variables were: DSAge → DSEduc = 0.06, DSAge → DSEth = -0.10 ($p \leq 0.05$), DSEduc → DSEth = 0.11 ($p \leq 0.01$), DSAge → DSVal = -0.04, DSEduc → DSVal = 0.04, DSEth → DSVal = -0.04. Correlations among the endogenous latent variables were all statistically significant ($p \leq 0.001$): EE → DP = 0.59, EE → PA = -0.17, and PA → DP = -0.49.
[a]Although statistically significant, the direction of the relationship was counter to the hypothesis, therefore it was rejected.

H1.4: *Actual work values diversity between an individual and others within a workgroup is positively associated with EE and DP, and is negatively associated with PA.*

Hypothesis 1.4 was partially accepted because the direct effect between *actual* work values diversity and depersonalization ($\beta = 0.10$) was statistically significant (see Table 6.3). Nurses with diverse work values, relative to those of their colleagues, displayed more distant, negative, and callous attitudes toward others, but did not experience emotional exhaustion or a reduced sense of personal accomplishment.

6.3.2.1   Summary

Model 1 demonstrated acceptable fit with the data; however, the only parameter estimates that were statistically significant were the effects of *actual* ethnic/racial diversity on personal accomplishment (Hypothesis 1.3) and *actual* work values diversity on depersonalization (Hypothesis 1.4) (see Figure 6.4). This section establishes the significant relationships between the actual diversity variables and burnout (Condition 1). The following sections describe the tests for Conditions 2, 3, and 4 in examining the mediator effects of both *relationship* and *task* conflict using the **intragroup** and **individual** measures. All the *actual* diversity attributes were included in the next portion of the analysis testing for mediation effects.

Figure 6.4   Significant Pathways for Model 1: The Effects of *Actual* Relational Diversity on Burnout

DSAge = *Actual* age diversity
DSEduc = *Actual* educational diversity
DSEth = *Actual* ethnic/racial diversity
DSVal = *Actual* work values diversity

EE = Emotional exhaustion
DP = Depersonalization
PA = Personal accomplishment

→ statistically significant pathway
- - → statistically nonsignificant pathway
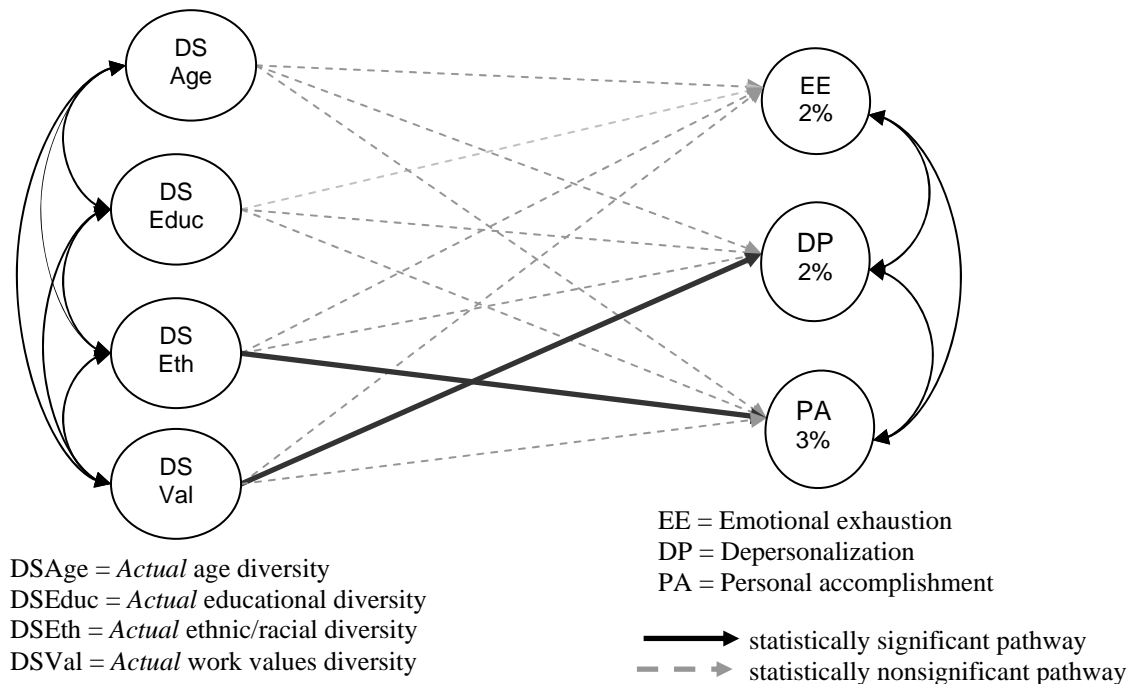
6.3.3 Model 2: The Effects of *Actual* Relational Diversity on Burnout as Mediated by Intragroup Conflict

Intragroup *Relationship* Conflict (Model 2a, see Figure 6.2)

H2.1a: *The effects of actual age diversity on EE, DP, and PA are mediated by individuals' perceptions of relationship conflict within the workgroup.*

H2.2a: *The effects of actual educational diversity on EE, DP, and PA are mediated by individuals' perceptions of relationship conflict within the workgroup.*

H2.3a: *The effects of actual ethnic/racial diversity on EE, DP, and PA are mediated by individuals' perceptions of relationship conflict within the workgroup.*

H2.4a: *The effects of actual work values diversity on EE, DP, and PA are mediated by individuals' perceptions of relationship conflict within the workgroup.*

Intragroup *Task* Conflict (Model 2b, see Figure 6.3)

H2.1b: *The effects of actual age diversity on EE, DP, and PA are mediated by individuals' perceptions of task conflict within the workgroup.*

H2.2b: *The effects of actual educational diversity on EE, DP, and PA are mediated by individuals' perceptions of task conflict within the workgroup.*

H2.3b: *The effects of actual ethnic/racial diversity on EE, DP, and PA are mediated by individuals' perceptions of task conflict within the workgroup.*

H2.4b: *The effects of actual work values diversity on EE, DP, and PA are mediated by individuals' perceptions of task conflict within the workgroup.*

In the previous section, I examined the overall direct effects for the *actual* diversity variables on burnout (Condition 1). To follow is the testing of the indirect effects (Conditions 2 and 3) and the total indirect effects (Condition 4), which are necessary for mediation.

6.3.3.1 Condition 2

None of the parameter estimates for the *actual* diversity attributes on **intragroup** *relationship* conflict (Hypotheses 2.1a to 2.4a) and **intragroup** *task* conflict (Hypotheses 2.1b and 2.4b) was statistically significant in the direction hypothesized (see Table 6.4 to Table 6.7). The second condition for mediation was therefore not met.

6.3.3.2 Condition 3

In assessing Condition 3, there were two statistically significant associations between **intragroup** *relationship* conflict and the aspects of burnout: relationship conflict → emotional exhaustion, $\beta = 0.31$, and relationship conflict → depersonalization, $\beta = 0.26$ (see Table 6.4 and Table 6.6). **Intragroup** *task* conflict was also significantly related to emotional exhaustion

($\beta = 0.36$) and depersonalization ($\beta = 0.28$) (see Table 6.5 and Table 6.7). *Relationship* and *task* conflict did not predict personal accomplishment.

6.3.3.3 Condition 4

For Models 2 and 3, the total indirect (mediating) effects were not statistically significant (see Table 6.6 and Table 6.7). Hypotheses 2.1a to 2.4a and 2.1b to 2.4b were therefore rejected. It was concluded that although *actual* work values diversity led to depersonalization, the process by which this occurred was not through **intragroup** *relationship* or *task* conflict. Also, the relationship between *actual* ethnic/racial diversity and personal accomplishment was not mediated by **intragroup** *relationship* or *task* conflict.

6.3.3.4 Summary

Intragroup conflict did not mediate the significant effect of *actual* work values diversity on depersonalization or the significant effect of *actual* ethnic/racial diversity on personal accomplishment.

Table 6.4   **Unstandardized and Standardized Parameter Estimates for Model 2a: The Direct and Indirect Effects of *Actual* Diversity on Burnout as Mediated by Intragroup *Relationship* Conflict**

Latent variable path	B	β	Sign level (*p*)	95% CI (β)	
				Lower	Upper
DSAge → EE	-0.01	-0.07	0.11	-0.15	0.02
DSAge → DP	-0.02	-0.07	0.11	-0.16	0.02
DSAge → PA	0.02	0.09	0.07	-0.01	0.19
DSAge → REL	-0.02	-0.10	0.02	-0.19	-0.01
DSEduc → EE	-0.19	-0.03	0.54	-0.10	0.06
DSEduc → DP	-0.18	-0.02	0.58	-0.11	0.06
DSEduc → PA	0.19	0.03	0.59	-0.07	0.12
DSEduc → REL	0.02	0.00	0.95	-0.08	0.09
DSEth → EE	-0.57	-0.12	0.01	-0.20	-0.04
DSEth → DP	-0.25	-0.05	0.23	-0.14	0.03
DSEth → PA	-0.53	-0.12	0.02	-0.21	-0.02
DSEth → REL	-0.07	-0.01	0.74	-0.10	0.07
DSVal → EE	0.01	0.00	0.98	-0.07	0.08
DSVal → DP	0.55	0.10	0.03	0.01	0.18
DSVal → PA	0.50	0.09	0.05	0.00	0.19
DSVal → REL	0.07	0.01	0.80	-0.07	0.09
REL → EE	0.29	0.31	0.00	0.24	0.39
REL → DP	0.23	0.26	0.00	0.17	0.34
REL → PA	-0.05	-0.06	0.20	-0.15	0.03

Note. $N = 603$. B = unstandardized parameter estimates, β = standardized parameter estimates, CI = confidence interval. Correlations for the exogenous manifest variables were: DSAge → DSEduc = 0.06, DSAge → DSEth = -0.10 ($p \leq 0.05$), DSAge → DSVal = -0.04, DSEduc → DSVal = 0.04, DSEth → DSEduc = 0.11 ($p \leq 0.01$), DSVal → DSEth = 0.03. Correlations for the endogenous latent variables were all statistically significant ($p \leq 0.01$): EE → DP = 0.55, DP → PA = -0.49, and EE → PA = -0.14.

Table 6.5 **Unstandardized and Standardized Parameter Estimates for Model 2b: The Direct and Indirect Effects of *Actual* Diversity on Burnout as Mediated by Intragroup *Task* Conflict**

Latent variable path	B	β	Sign level (*p*)	95% CI (β)	
				Lower	Upper
DSAge → EE	-0.02	-0.07	0.09	-0.16	0.01
DSAge → DP	-0.02	-0.08	0.09	-0.16	0.01
DSAge → PA	0.02	0.09	0.07	-0.01	0.19
DSAge → TSK	-0.02	-0.08	0.11	-0.17	0.02
DSEduc → EE	-0.18	-0.02	0.56	-0.10	0.05
DSEduc → DP	-0.17	-0.02	0.59	-0.10	0.06
DSEduc → PA	0.19	0.03	0.59	-0.07	0.12
DSEduc → TSK	-0.01	-0.00	0.98	-0.09	0.09
DSEth → EE	-0.60	-0.12	0.00	-0.21	-0.04
DSEth → DP	-0.27	-0.06	0.19	-0.15	0.03
DSEth → PA	-0.52	-0.12	0.02	-0.21	-0.02
DSEth → TSK	0.03	0.01	0.88	-0.08	0.10
DSVal → EE	-0.11	-0.02	0.61	-0.09	0.06
DSVal → DP	0.45	0.08	0.06	-0.00	0.16
DSVal → PA	0.53	0.10	0.04	0.00	0.19
DSVal → TSK	0.41	0.07	0.12	-0.02	0.15
TSK → EE	0.35	0.36	0.00	0.29	0.43
TSK → DP	0.27	0.28	0.00	0.20	0.37
TSK → PA	-0.07	-0.08	0.12	-0.17	0.02

Note. $N = 603$. B = unstandardized parameter estimates, β = standardized parameter estimates, CI = confidence interval. Correlations for the exogenous manifest variables were: DSAge → DSEduc = 0.06, DSAge → DSEth = -0.10 ($p \leq 0.05$), DSAge → DSVal = -0.04, DSEduc → DSVal = 0.04, DSEth → DSEduc = 0.11 ($p \leq 0.01$), DSVal → DSEth = 0.03. Correlations for the endogenous latent variables were all statistically significant ($p \leq 0.01$): EE → DP = 0.54, DP → PA = -0.49, and EE → PA = -0.13.

Table 6.6 **Standardized Mediation Effects for Model 2a: The Effects of *Actual* Relational Diversity on Burnout as Mediated by Intragroup *Relationship* Conflict**

Latent variable path	Direct effect[a]	Indirect effect[b]	Indirect effect[c]	Total indirect effect[d]	Total indirect effects 95% CI Lower	Total indirect effects 95% CI Upper	Total effect[e]	Hypothesis supported
2.1a *Actual* Age Diversity								
DSAge → REL → EE	-0.07	-0.10*	0.31***	-0.03*	-0.06	0.00	-0.10	Rejected[f]
DSAge → REL → DP	-0.07	-0.10*	0.26***	-0.03*	-0.05	0.00	-0.10	Rejected[f]
DSAge → REL → PA	0.09	-0.10*	-0.06	0.01	-0.01	0.02	0.10	Rejected
2.2a *Actual* Educational Diversity								
DSEduc → REL → EE	-0.03	0.00	0.31***	0.00	-0.03	0.03	-0.02	Rejected
DSEduc → REL → DP	-0.02	0.00	0.26***	0.00	-0.02	0.02	-0.02	Rejected
DSEduc → REL → PA	0.03	0.00	-0.06	0.00	-0.01	0.01	0.03	Rejected
2.3a *Actual* Ethnic/racial Diversity								
DSEth → REL → EE	-0.12**	-0.01	0.31***	-0.00	-0.03	0.02	-0.12	Rejected
DSEth → REL → DP	-0.05	-0.01	0.26***	-0.00	-0.03	0.02	-0.05	Rejected
DSEth → REL → PA	-0.12*	-0.01	-0.06	0.00	-0.01	0.01	-0.12	Rejected
2.4a *Actual* Work Values Diversity								
DSVal → REL → EE	0.00	0.01	0.31***	0.00	-0.02	0.03	0.00	Rejected
DSVal → REL → DP	0.10*	0.01	0.26***	0.00	-0.02	0.02	0.10	Rejected
DSVal → REL → PA	0.09*	0.01	-0.06	-0.00	-0.01	0.01	0.09	Rejected

Note. $N = 603$. R^2 EE = 0.12, DP = 0.09, PA = 0.04, and REL = 0.01.

[a]Direct effect (*c'*) from exogenous variable to endogenous variable while controlling for mediating variable.

[b]Indirect effect (*a*) from the exogenous variable to the mediating variable.

[c]Indirect effect (*b*) from the mediating variable to the endogenous variable.

[d]Total indirect effect *(ab)* is the product of the indirect effects (*a*) and the indirect effects (*b*).

[e]The sum of the direct effect and total indirect effect.

[f]Although the relationship is statistically significant, it was not in the direction hypothesized. When the values of c > *c'* (values for *c* are found in Table 6.13) and the total indirect effect (ab) and the direct effect (*c'*) have negative values, the finding may be due to chance (MacKinnon, Krull, & Lockwood, 2000).

*$p \leq 0.05$ **$p \leq 0.01$ ***$p \leq 0.001$.

Table 6.7 **Standardized Mediation Effects for Model 2b: The Effects of *Actual* Relational Diversity on Burnout as Mediated by Intragroup *Task* Conflict**

Latent variable path	Direct effect[a]	Indirect effect[b]	Indirect effect[c]	Total indirect effect[d]	Total indirect effects 95% CI Lower	Upper	Total effect[e]	Hypothesis supported
2.1a *Actual* Age Diversity								
DSAge → TSK → EE	-0.07	-0.08	0.36[***]	-0.03	-0.06	0.01	-0.10	Rejected
DSAge → TSK → DP	-0.08	-0.08	0.28[***]	-0.02	-0.05	0.01	-0.10	Rejected
DSAge → TSK → PA	0.09	-0.08	-0.08	0.01	-0.01	0.02	0.10	Rejected
2.2a *Actual* Educational Diversity								
DSEduc → TSK → EE	-0.02	0.00	0.36[***]	0.00	-0.03	0.03	-0.02	Rejected
DSEduc → TSK → DP	-0.02	0.00	0.28[***]	0.00	-0.03	0.02	-0.02	Rejected
DSEduc → TSK → PA	0.03	0.00	-0.08	0.00	-0.01	0.01	0.03	Rejected
2.3a *Actual* Ethnic/racial Diversity								
DSEth → TSK → EE	-0.12[***]	0.01	0.36[***]	0.00	-0.03	0.03	-0.12	Rejected
DSEth → TSK → DP	-0.06	0.01	0.28[***]	0.00	-0.02	0.03	-0.06	Rejected
DSEth → TSK → PA	-0.12[**]	0.01	-0.08	-0.00	-0.01	0.01	-0.12	Rejected
2.4a *Actual* Work Values Diversity								
DSVal → TSK → EE	-0.02	0.07	0.36[***]	0.02	-0.01	0.06	0.00	Rejected
DSVal → TSK → DP	0.08	0.07	0.28[***]	0.02	-0.01	0.04	0.10	Rejected
DSVal → TSK → PA	0.10[*]	0.07	-0.08	-0.01	-0.01	0.00	0.09	Rejected

Note. $N = 603$. R^2 EE = 0.15, DP = 0.10, PA = 0.04, and TSK = 0.01.

[a]Direct effect (*c'*) from exogenous variable to endogenous variable while controlling for mediating variable.

[b]Indirect effect (*a*) from the exogenous variable to the mediating variable.

[c]Indirect effect (*b*) from the mediating variable to the endogenous variable.

[d]Total indirect effect (*ab*) is the product of the indirect effects (*a*) and the indirect effects (*b*).

[e]The sum of the direct effect and total indirect effect.

[*]$p \leq 0.05$ and [***]$p \leq 0.001$.

6.3.4 Model 3: The Effects of *Actual* Relational Diversity on Burnout as Mediated by Individual Conflict

Individual *Relationship* Conflict (Model 3a, see Figure 6.2)

H3.1a: *The effects of actual age diversity on EE, DP, and PA are mediated by individuals' involvement in relationship conflict.*

H3.2a: *The effects of actual educational diversity on EE, DP, and PA are mediated by individuals' involvement in relationship conflict.*

H3.3a: *The effects of actual ethnic/racial diversity on EE, DP, and PA are mediated by individuals' involvement in relationship conflict.*

H3.4a: *The effects of actual work values diversity on EE, DP, and PA are mediated by individuals' involvement in relationship conflict.*

Individual *Task* Conflict (Model 3b, see Figure 6.3)

H3.1b: *The effects of actual age diversity on EE, DP, and PA are mediated by individuals' involvement in task conflict.*

H3.2b: *The effects of actual educational diversity on EE, DP, and PA are mediated by individuals' involvement in task conflict.*

H3.3b: *The effects of actual ethnic/racial diversity on EE, DP, and PA are mediated by individuals' involvement in task conflict.*

H3.4b: *The effects of actual work values diversity on EE, DP, and PA are mediated by individuals' involvement in task conflict.*

6.3.4.1 Condition 2

The four *actual* diversity attributes did not predict individuals' involvement in *relationship* conflict (Hypotheses 3.1a to 3.4a) or *task* conflict (Hypotheses 3.1b and 3.4b) in the direction hypothesized (see Table 6.8 to Table 6.11). Thus, the second condition for mediation was not met.

6.3.4.2 Condition 3

As hypothesized, **individual** *relationship* conflict was significantly related to emotional exhaustion ($\beta = 0.33$), depersonalization ($\beta = 0.41$), and personal accomplishment ($\beta = -0.22$), as was **individual** *task* conflict ($\beta = 0.35$, $\beta = 0.42$, $\beta = -0.22$, respectively) (see Table 6.8 to Table 6.11).

6.3.4.3 Condition 4

The total indirect (mediating) effects for individuals' involvement in *relationship* conflict (Hypotheses 3.1a to 3.4a) and *task* conflict (Hypotheses 3.1b and 3.4b) were not statistically significant (see Table 6.10 to Table 6.11).

6.3.4.4 Summary

Individuals' involvement in *relationship* and *task* conflict did not explain the mechanism by which *actual* work values diversity led to depersonalization. The same was true for the association between *actual* ethnic/racial diversity and personal accomplishment.

Table 6.8 **Unstandardized and Standardized Parameter Estimates for Model 3a: The Direct and Indirect Effects of *Actual* Relational Diversity on Burnout as Mediated by Individual *Relationship* Conflict**

Latent variable path	B	β	Sign level (p)	95% CI (β)	
				Lower	Upper
DSAge → EE	-0.01	-0.07	0.10	-0.15	0.01
DSAge → DP	-0.01	-0.05	0.22	-0.14	0.03
DSAge → PA	0.02	0.08	0.10	-0.02	0.17
DSAge → REL	-0.03	-0.10	0.03	-0.19	-0.01
DSEduc → EE	-0.26	-0.03	0.42	-0.11	0.05
DSEduc → DP	-0.27	-0.04	0.37	-0.11	0.04
DSEduc → PA	0.26	0.04	0.43	-0.05	0.13
DSEduc → REL	0.26	0.03	0.51	-0.06	0.12
DSEth → EE	-0.55	-0.11	0.01	-0.20	-0.03
DSEth → DP	-0.22	-0.05	0.27	-0.13	0.04
DSEth → PA	-0.46	-0.10	0.02	-0.19	-0.01
DSEth → REL	-0.14	-0.03	0.57	-0.11	0.06
DSVal → EE	-0.04	-0.01	0.85	-0.08	0.07
DSVal → DP	0.47	0.08	0.04	0.01	0.16
DSVal → PA	0.58	0.11	0.01	0.02	0.19
DSVal → REL	0.25	0.04	0.42	-0.05	0.13
REL → EE	0.28	0.33	0.00	0.25	0.41
REL → DP	0.34	0.41	0.00	0.33	0.49
REL → PA	-0.18	-0.22	0.00	-0.32	-0.13

Note. $N = 603$. B = unstandardized parameter estimates, β = standardized parameter estimates, CI = confidence interval. Correlations for the exogenous manifest variables were: DSAge → DSEduc = 0.06, DSAge → DSEth = -0.10 ($p \leq 0.05$), DSAge → DSVal = -0.04, DSEduc → DSVal = 0.04, DSEth → DSEduc = 0.11 ($p \leq 0.01$), DSVal → DSEth = 0.03. Correlations for the endogenous latent variables were all statistically significant ($p \leq 0.05$): EE → DP = 0.53, DP → PA = -0.44, and EE → PA = -0.10.

Table 6.9 **Unstandardized and Standardized Parameter Estimates for Model 3b: The Direct and Indirect Effects of *Actual* Relational Diversity on Burnout as Mediated by Individual *Task* Conflict**

Latent variable path	B	β	Sign level (*p*)	95% CI (β)	
				Lower	Upper
DSAge → EE	-0.02	-0.08	0.07	-0.16	0.01
DSAge → DP	-0.01	-0.06	0.14	-0.15	0.02
DSAge → PA	0.02	0.08	0.08	-0.01	0.17
DSAge → TSK	-0.02	-0.07	0.10	-0.16	0.02
DSEduc → EE	-0.27	-0.03	0.40	-0.11	0.05
DSEduc → DP	-0.28	-0.04	0.36	-0.12	0.04
DSEduc → PA	0.26	0.04	0.43	-0.05	0.13
DSEduc → TSK	0.26	0.03	0.49	-0.06	0.12
DSEth → EE	-0.51	-0.11	0.01	-0.19	-0.02
DSEth → DP	-0.18	-0.04	0.37	-0.12	0.05
DSEth → PA	-0.48	-0.11	0.02	-0.20	-0.02
DSEth → TSK	-0.25	-0.05	0.29	-0.13	0.04
DSVal → EE	-0.12	-0.02	0.59	-0.09	0.05
DSVal → DP	0.39	0.07	0.08	-0.01	0.15
DSVal → PA	0.62	0.12	0.01	0.03	0.20
DSVal → TSK	0.45	0.07	0.10	-0.01	0.15
TSK → EE	0.32	0.35	0.00	0.27	0.43
TSK → DP	0.38	0.42	0.00	0.34	0.49
TSK → PA	-0.19	-0.22	0.00	-0.32	-0.13

Note. *N* = 603. B = unstandardized parameter estimates, β = standardized parameter estimates, CI = confidence interval. Correlations for the exogenous manifest variables were: DSAge → DSEduc = 0.06, DSAge → DSEth = -0.10 (*p* ≤ 0.05), DSAge → DSVal = -0.04, DSEduc → DSVal = 0.04, DSEth → DSEduc = 0.11 (*p* ≤ 0.01), DSVal → DSEth = 0.03. Correlations for the endogenous latent variables were all statistically significant (*p* ≤ 0.05): EE → DP = 0.52, DP → PA = -0.44, and EE → PA = -0.10.

Table 6.10 **Standardized Mediation Effects for Model 3a: The Effects of *Actual* Relational Diversity on Burnout as Mediated by Individual *Relationship* Conflict**

Latent variable path	Direct effect[a]	Indirect effect[b]	Indirect effect[c]	Total Indirect effect[d]	Total indirect effects 95% CI Lower	Upper	Total effect[e]	Hypothesis supported
3.1a *Actual* Age Diversity								
DSAge → REL → EE	-0.07	-0.10[*]	0.33[***]	-0.03[*]	-0.06	-0.00	-0.10	Rejected[f]
DSAge → REL → DP	-0.05	-0.10[*]	0.41[***]	-0.04[*]	-0.08	-0.00	-0.09	Rejected[f]
DSAge → REL → PA	0.08	-0.10[*]	-0.22[***]	0.02[*]	0.00	0.05	0.10	Rejected[f]
3.2a *Actual* Educational Diversity								
DSEduc → REL → EE	-0.03	0.03	0.33[***]	0.01	-0.02	0.04	-0.02	Rejected
DSEduc → REL → DP	-0.04	0.03	0.41[***]	0.01	-0.02	0.05	-0.03	Rejected
DSEduc → REL → PA	0.04	0.03	-0.22[***]	-0.01	-0.03	0.01	0.03	Rejected
3.3a *Actual* Ethnic/racial Diversity								
DSEth → REL → EE	-0.11[**]	-0.03	0.33[***]	-0.01	-0.04	0.02	-0.12	Rejected
DSEth → REL → DP	-0.05	-0.03	0.41[***]	-0.01	-0.05	0.03	-0.06	Rejected
DSEth → REL → PA	-0.10[*]	-0.03	-0.22[***]	0.01	-0.01	0.03	-0.09	Rejected
3.4a *Actual* Work Values Diversity								
DSVal → REL → EE	-0.01	0.04	0.33[***]	0.01	-0.02	0.04	0.00	Rejected
DSVal → REL → DP	0.08[*]	0.04	0.41[***]	0.02	-0.02	0.05	0.10	Rejected
DSVal → REL → PA	0.11[**]	0.04	-0.22[***]	-0.01	-0.03	0.01	0.10	Rejected

Note. $N = 603$. R^2 for EE = 0.13 DP = 0.19, PA = 0.08, and REL = 0.01.

[a]Direct effect (*c'*) from exogenous variable to endogenous variable while controlling for mediating variable.

[b]Indirect effect (*a*) from the exogenous variable to the mediating variable.

[c]Indirect effect (*b*) from the mediating variable to the endogenous variable.

[d]Total indirect effect (*ab*) is the product of the indirect effects (*a*) and the indirect effects (*b*).

[e]The sum of the direct effect and total indirect effect.

[f]Although the relationship was statistically significant, it was not in the direction hypothesized. When the values of c > c' (values for *c* are found in Figure 6.3) and the total indirect effect (*ab*) and the direct effect (*c'*) have negative values, the finding may be due to chance (MacKinnon et al., 2000).

[*]$p \leq 0.05$ [**]$p \leq 0.01$ [***]$p \leq 0.001$.

Table 6.11   **Standardized Mediation Effects for Model 3b: The Effects of *Actual* Relational Diversity on Burnout as Mediated by Individual *Task* Conflict**

Latent variable path	Direct effect[a]	Indirect effect[b]	Indirect effect[c]	Total indirect effect[d]	Total indirect effects 95% CI		Total effect[e]	Hypothesis supported
					Lower	Upper		
3.1a *Actual* Age Diversity								
DSAge → TSK → EE	-0.08	-0.07*	0.35***	-0.03	-0.06	-0.01	-0.11	Rejected
DSAge → TSK → DP	-0.06	-0.07*	0.42***	-0.03	-0.07	-0.01	-0.09	Rejected
DSAge → TSK → PA	0.08	-0.07*	-0.22***	0.02	-0.01	0.04	0.10	Rejected
3.2a *Actual* Educational Diversity								
DSEduc → TSK → EE	-0.03	0.03	0.35***	0.01	-0.02	0.04	-0.02	Rejected
DSEduc → TSK → DP	-0.04	0.03	0.42***	0.01	-0.02	0.05	-0.03	Rejected
DSEduc → TSK → PA	0.04	0.03	-0.22***	-0.01	-0.03	0.01	0.03	Rejected
3.3a *Actual* Ethnic/racial Diversity								
DSEth → TSK → EE	-0.11**	-0.05	0.35***	-0.02	-0.05	0.01	-0.13	Rejected
DSEth → TSK → DP	-0.04	-0.05	0.42***	-0.02	-0.06	0.02	-0.06	Rejected
DSEth → TSK → PA	-0.11*	-0.05	-0.22***	0.01	-0.01	0.03	-0.10	Rejected
3.4a *Actual* Work Values Diversity								
DSVal → TSK → EE	-0.02	0.07	0.35***	0.03	-0.01	0.05	0.01	Rejected
DSVal → TSK → DP	0.07*	0.07	0.42***	0.03	-0.01	0.06	0.10	Rejected
DSVal → TSK → PA	0.12*	0.07	-0.22***	-0.02	-0.04	0.00	0.10	Rejected

Note. $N = 603$. R^2 for EE = 0.14, DP = 0.19, PA = 0.08, and TSK = 0.01.

[a]Direct effect (*c'*) from exogenous variable to endogenous variable while controlling for mediating variable.

[b]Indirect effect (*a*) from the exogenous variable to the mediating variable.

[c]Indirect effect (*b*) from the mediating variable to the endogenous variable.

[d]Total indirect effect (*ab*) is the product of the indirect effects (*a*) and the indirect effects (*b*).

[e]The sum of the direct effect and total indirect effect.

*$p \leq 0.05$ **$p \leq 0.01$ ***$p \leq 0.001$.

6.3.5 Summary of the Direct and Indirect Effects of *Actual* Relational Diversity on Burnout

The goodness-of-fit statistics for the structural models 1, 2, and 3 indicated adequate fit (see Table 6.2). For Model 1, only two overall direct effects were found to be statistically significant in the direction originally hypothesized: *actual* ethnic/racial diversity was associated with a diminished sense of personal accomplishment (Hypothesis 1.3) and *actual* work values diversity was associated with depersonalization (Hypothesis 1.4). Nurses with diverse work values, relative to others in the workgroup, displayed more distant, negative, and callous attitudes toward others (i.e., clients and coworkers). Nurses very different from the others in terms of their ethnicity/race had a diminished sense of personal accomplishment. With regards to the mediating effects of *relationship* and *task* conflict, none of the specified hypotheses for Models 2 and 3 was supported. Figure 6.4 depicts the statistically significant pathways for this portion of the analyses.

6.4 The Direct and Indirect Effects of *Perceived* Relational Diversity on Burnout

The second approach used to operationalize relational diversity was the perceptual approach. This section presents the analyses of the direct effects of *perceived* relational diversity attributes on the three aspects of burnout (Model 4, see Figure 6.5). Testing the overall direct effects of *perceived* diversity on burnout was the first step in examining the mediation effects (Condition 1). The effects of *relationship* and *task* conflict were then included to examine the significance of the indirect effects (Conditions 2 and 3) and the total indirect effects (Condition 4). Model 5 tested **intragroup** *relationship* conflict (Model 5a, see Figure 6.6) and *task* conflict (Model 5b, see Figure 6.7) as mediators of the association between the *perceived* diversity attributes and burnout. In Model 6, individuals' involvement in *relationship* conflict (Model 6a, see Figure 6.6) and *task* conflict (Model 6b, see Figure 6.7) was tested as a mediator. When mediation was established, the direct effect (*c'*) was compared with the overall direct effect (*c*), and the effect size was calculated.

6.4.1 Model Fit

Models 4, 5, and 6 demonstrated acceptable fit with the data (see Table 6.12). Taken together, the direct effects of *perceived* diversity in age, education, ethnicity/race, and work

values accounted for 3% to 7% of the variance in the endogenous latent variables. The variance explained increased with the addition of the mediators, *relationship* and *task* conflict (range = 6% to 20%).

Table 6.12   Summary of the Goodness-of-Fit Indices and Total Variance Explained for the Effects of *Perceived* Relational Diversity on Burnout[a]

Model	Fit indices	Total variance explained for endogenous latent variables
DIRECT EFFECT MODEL		
Model 4	$\chi^2_{(106)} = 354.63$, $p < 0.001$ CFI = 0.96 TLI = 0.98 RMSEA = 0.06	EE = 3% DP = 7% PA = 7%
SINGLE–MEDIATOR MODELS (INTRAGROUP CONFLICT)		
Model 5a	$\chi^2_{(121)} = 360.16$, $p < 0.001$ CFI = 0.97 TLI = 0.98 RMSEA = 0.06	EE = 11% DP = 11% PA = 6% Intragroup REL conflict = 17%
Model 5b	$\chi^2_{(120)} = 359.79$, $p < 0.001$ CFI = 0.96 TLI = 0.98 RMSEA = 0.06	EE = 13% DP = 12% PA = 6% Intragroup TSK conflict = 20%
SINGLE–MEDIATOR MODELS (INDIVIDUAL CONFLICT)		
Model 6a	$\chi^2_{(125)} = 369.97$, $p < 0.001$ CFI = 0.96 TLI = 0.98 RMSEA = 0.06	EE = 11% DP = 20% PA = 8% Individual REL conflict = 11%
Model 6b	$\chi^2_{(130)} = 389.07$, $p < 0.001$ CFI = 0.96 TLI = 0.98 RMSEA = 0.06	EE = 13% DP = 20% PA = 8% Individual TSK conflict = 14%

Notes. $N = 603$. WLSMV estimator. EE = Emotional exhaustion, DP= Depersonalization, PA = Personal accomplishment, REL = Relationship, and TSK = Task.

[a]Fit indices and total variance explained for the multiple–mediator models:

- *Perceived* Relational Diversity on Burnout as Mediated by Intragroup Relationship and Task Conflict, $\chi^2_{(133)} = 356.21$, $p < 0.001$, CFI = 0.97, TLI = 0.99, and RMSEA = 0.05; EE = 14%, DP = 12%, PA = 7%, Intragroup relationship conflict = 17%, and Intragroup task conflict = 20%.
- *Perceived* Relational Diversity on Burnout as Mediated by Individual Relationship and Task Conflict, $\chi^2_{(144)} = 382.42$, $p < 0.001$, CFI = 0.97, TLI = 0.98, and RMSEA = 0.05; EE = 13%, DP = 20%, PA = 9%, Individual relationship conflict = 11%, Individual task conflict = 15%.

Figure 6.5 Model 4: The Effects of *Perceived* Relational Diversity on Burnout

PAge = *Perceived* age diversity
PEduc = *Perceived* educational diversity
PEth = *Perceived* ethnic/racial diversity
PVal = *Perceived* work values diversity

EE = Emotional exhaustion
DP = Depersonalization
PA = Personal accomplishment
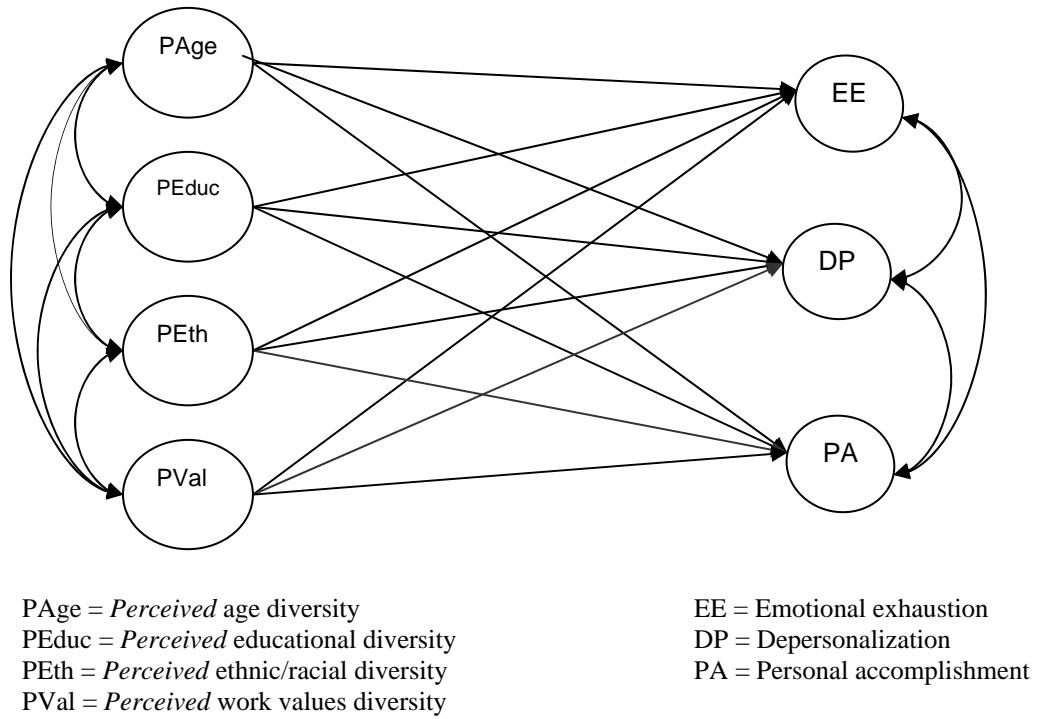
Figure 6.6   Model 5a and 6a: The Effects of *Perceived* Relational Diversity on Burnout as Mediated by *Relationship* Conflict
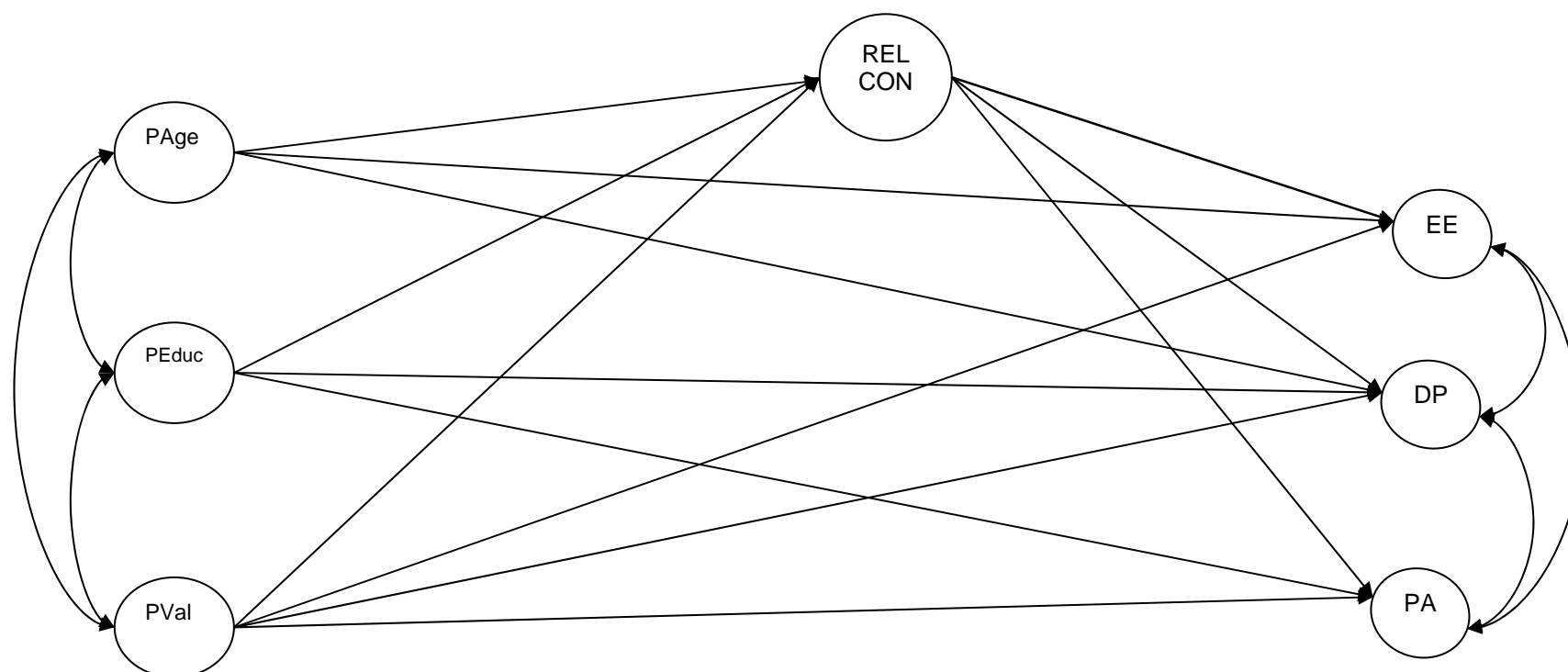
PAge = *Perceived* age diversity
PEduc = *Perceived* educational diversity
PEth = *Perceived* ethnic/racial diversity
PVal = *Perceived* work values diversity

REL CON = *Relationship* conflict
(the model is the same for both
Intragroup and **Individual** conflict)

EE = Emotional exhaustion
DP = Depersonalization
PA = Personal accomplishment

Figure 6.7   Model 5b and 6b: The Effects of *Perceived* Relational Diversity on Burnout as Mediated by *Task* Conflict
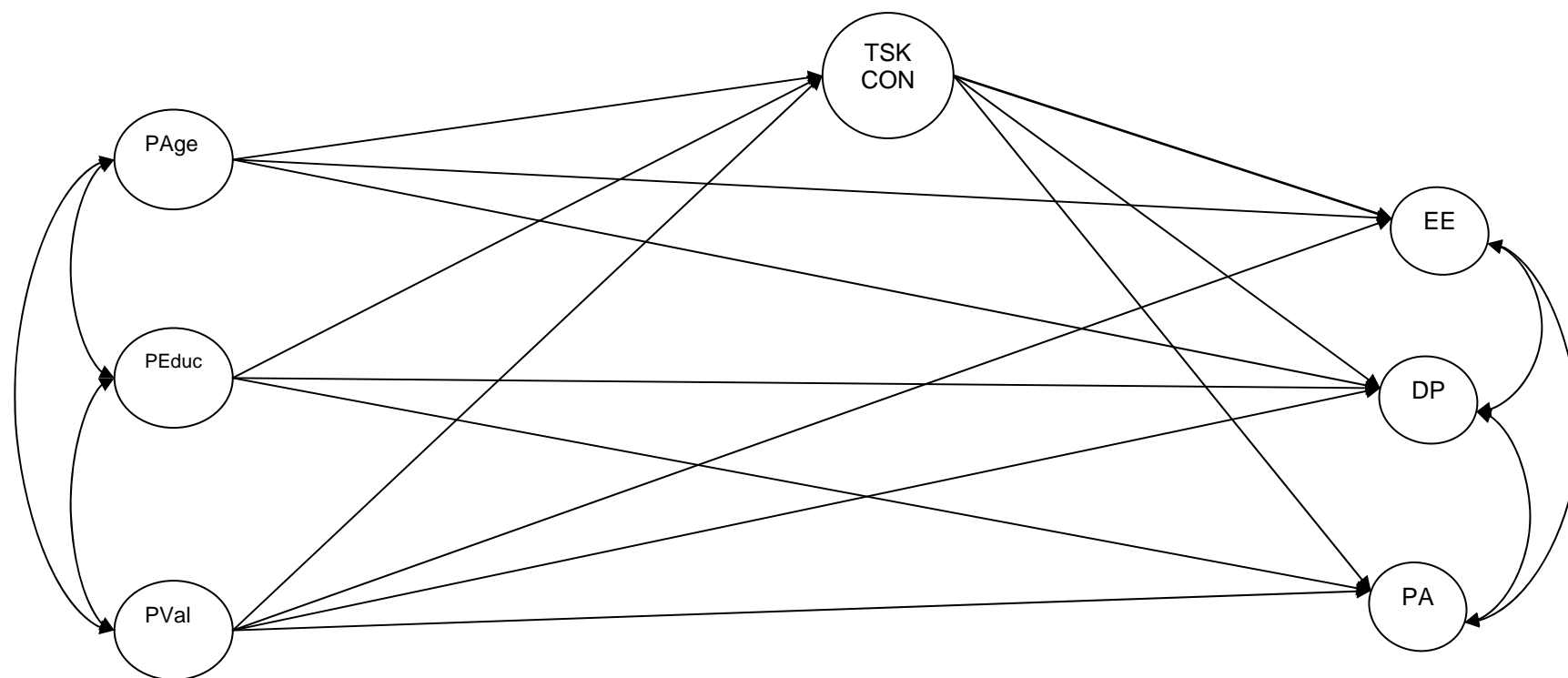
PAge = *Perceived* age diversity
PEduc = *Perceived* educational diversity
PEth = *Perceived* ethnic/racial diversity
PVal = *Perceived* work values diversity

TSK CON = *Task* conflict
(the model is the same for both
Intragroup and **Individual** conflict)

EE = Emotional exhaustion
DP = Depersonalization
PA = Personal accomplishment

6.4.2 Model 4: The Direct Effects of *Perceived* Relational Diversity on Burnout (Condition 1)

H4.1: *Perceived age diversity between an individual and others within a workgroup is positively associated with EE and DP, and is negatively associated with PA.*

The direct path between *perceived* age diversity and depersonalization was statistically significant ($\beta = -0.19$); however, the significance was not in the direction originally hypothesized (see Table 6.13). Nurses who *perceived* they were different in age from others within the group reported less depersonalization, while those who reported being similar in age reported more negative, callous, or distant attitudes toward people. *Perceived* age diversity did not significantly predict feelings of being emotionally overextended or having a diminished sense of personal accomplishment.

Table 6.13   Standardized and Unstandardized Parameter Estimates for Model 4: The Overall Direct Effects of *Perceived* Relational Diversity on Burnout

Hypo-thesis	Latent Variable Path	B	β	Sign Level (*p*)	95% CI (β)		Hypothesis Supported
					Lower	Upper	
H4.1	PAge → EE	-0.09	-0.06	0.17	-0.15	0.03	Rejected
H4.1	PAge → DP	-0.25	-0.19	0.00	-0.28	-0.10	Rejected[a]
H4.1	PAge → PA	0.08	0.07	0.14	-0.02	0.17	Rejected
H4.2	PEduc → EE	-0.01	-0.01	0.85	-0.10	0.08	Rejected
H4.2	PEduc → DP	0.16	0.12	0.02	0.02	0.22	Accepted
H4.2	PEduc → PA	-0.15	-0.14	0.01	-0.23	-0.04	Accepted
H4.3	PEth → EE	-0.03	-0.02	0.61	-0.10	0.06	Rejected
H4.3	PEth → DP	-0.05	-0.04	0.45	-0.13	0.06	Rejected
H4.3	PEth → PA	0.05	0.05	0.30	-0.04	0.14	Rejected
H4.4	PVal → EE	0.18	0.18	0.00	0.09	0.27	Accepted
H4.4	PVal → DP	0.19	0.22	0.00	0.12	0.32	Accepted
H4.4	PVal → PA	-0.15	-0.21	0.00	-0.30	-0.12	Accepted

Note. $N = 603$, B = unstandardized parameter estimates, β = standardized parameter estimates, and CI = confidence interval. Correlations for the exogenous and endogenous latent variables all statistically significant ($p \leq 0.05$): PAge → PEduc = 0.32, PAge → PEth = 0.22, PAge → PVal = 0.32, PEduc → PEth = 0.25, PEduc → PVal = 0.38, PEth → PVal = 0.28, EE → DP = 0.58, DP → PA = -0.44, and EE → PA = -0.13.
[a]Although the relationship was statistically significant, it was not in the direction hypothesized.

6.4.2.1 Further Exploration of Unexpected Findings

To understand the negative relationship between *perceived* age diversity and depersonalization, further nonparametric analyses were conducted. *Perceived* diversity in age was significantly associated with depersonalization (r_s = -0.10, $p \leq 0.01$). Figure 6.8 illustrates the extent to which the nurses who *perceived* themselves to be different from others in their workgroup, in terms of their age, was associated with their depersonalization scores ($\chi^2_{(5)}$ = 21.01, $p \leq 0.01$) (see Table 6.14). Those who reported the highest depersonalization scores *perceived* themselves to be "*somewhat similar*" (*2*) to others in the workgroup; the Tamhane *post hoc* test indicated that nurses who reported "*2*" ("*somewhat similar*") on *perceived* age diversity had significantly higher depersonalization scores compared with nurses who reported "*6*" ("*not at all similar*") in age diversity.

Figure 6.8   Box Plots of Depersonalization Subscale Total Scores by *Perceived* Age Diversity
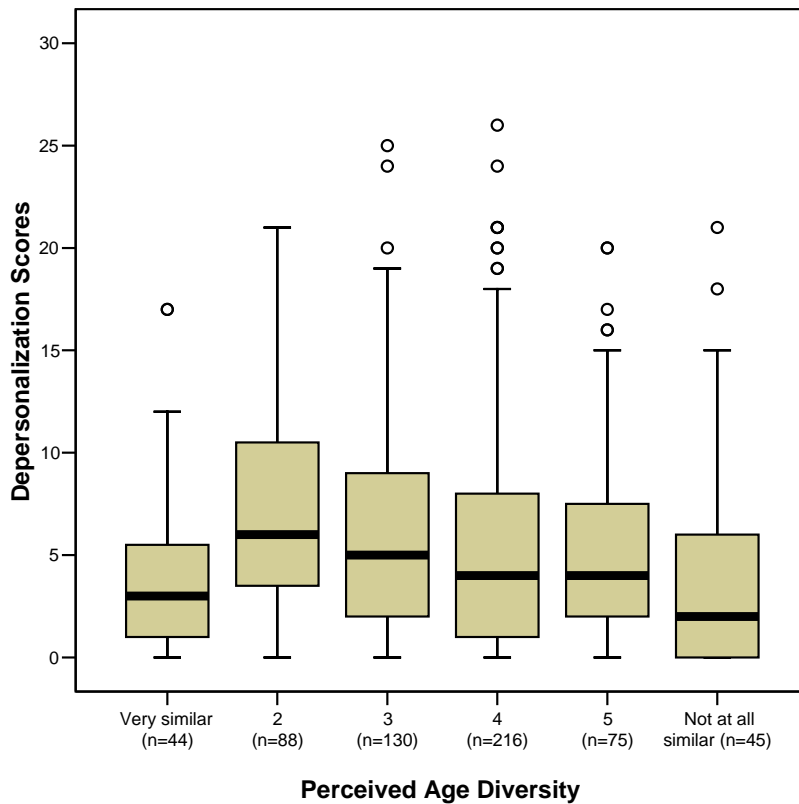
Table 6.14   Post Hoc Comparisons of Depersonalization Scores by *Perceived* Age Diversity

	Perceived age diversity	Mean rank	Post hoc comparison
Depersonalization Scores	1 (Very similar)	251.38	
	2	357.66	$2 > 6^*$
	3	319.98	
	4	287.45	
	5	291.15	
	6 (Not at all similar)	245.40	$6 < 2^*$

Notes. Group comparisons were conducted using the Kruskal-Wallis test. *Post hoc* comparisons were made using Tamhane's test. $\chi^2_{(5)} = 21.01$, $p \leq 0.01$.
$^*\, p \leq 0.05$

Perceived age diversity was positively associated with observed age in years $(r_s = 0.21, p \leq 0.01; \chi^2_{(3)} = 29.87, p \leq 0.001)$. In other words, those who *perceived* themselves to be different in terms of their age were the oldest nurses. *Post hoc* tests (see Table 6.15) indicated that nurses in the 50 years and older age group differed significantly on the *perceived* age diversity variable from the groups 20 to 29 years and 30 to 39 years. As well, nurses in the 30 to 39 year age group differed significantly from the 40 to 49 years group and 50 years and older. The youngest nurses *perceived* themselves to be somewhat similar in age with their coworkers, with the exception of the nurses 50 years and older.

Figure 6.9   Box Plots of *Perceived* Age Diversity by Observed Age Group
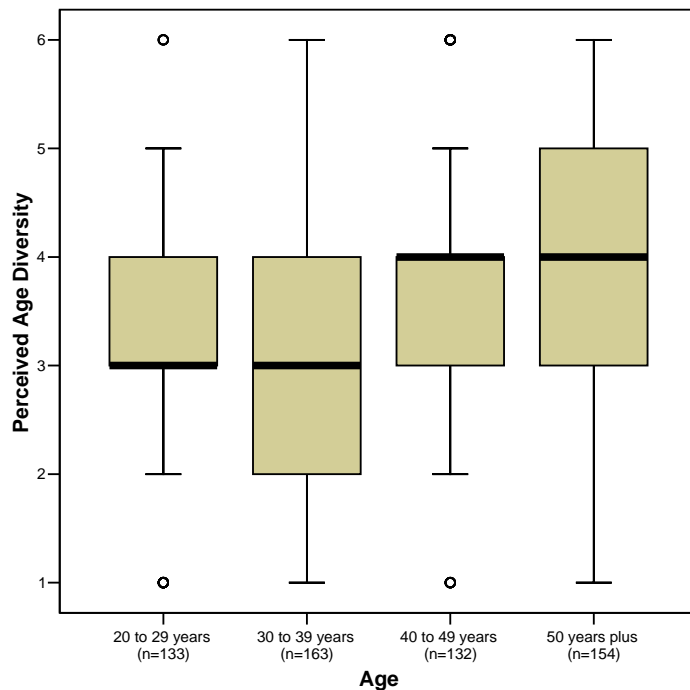
Table 6.15   Post Hoc Comparisons of *Perceived* Age Diversity by Observed Age Group

	Observed age group	Mean rank	Post hoc comparison
Perceived Age	1 (20 to 29 years)	266.51	1 < 4[*]
Diversity	2 (30 to 39 years)	249.32	2 < 4[*]
			2 < 3[*]
	3 (40 to 40 years)	312.41	3 > 2[*]
	4 (50 years plus)	339.81	4 > 2[*]
			4 > 1[*]

Notes. Group comparisons were conducted using the Kruskal-Wallis technique. *Post hoc* comparisons were made using Tamhane's test.

$\chi^2_{(3)} = 29.87$, $p \leq 0.001$

[*]$p \leq 0.05$

Subsequent to the nonparametric analyses, the correlation matrix with the latent variables, *perceived* age diversity and depersonalization was re-examined. It was noted that the parameter estimate was not congruent with the bivariate correlation (Tabachnick & Fidell, 2007): the correlation of these latent variables was -0.09 ($p > 0.05$) (see Table 5.17, page 142), yet the standardized direct effect was -0.19 ($p < 0.01$) (see Table 6.13). This suggested the possibility of a suppression effect. Through additional analyses, the partial correlation coefficient (i.e., the correlation between *perceived* educational diversity and depersonalization, while controlling for *perceived* age diversity) was compared with the magnitude of the Pearson product-moment correlation (i.e., *perceived* educational diversity and depersonalization) (Schumacker & Lomax, 2004). It was determined that *perceived* age diversity was acting as a suppressor variable for two relationships: *perceived* educational diversity → depersonalization and *perceived* work values diversity → depersonalization. This indicates that the relationships between other independent variables (*perceived* educational diversity and *perceived* work values diversity) were enhanced by the suppressor variable (*perceived* age diversity) because it suppressed any variance that was irrelevant to the prediction of the dependent variable (depersonalization). In other words, the inclusion of the suppressor variable enhanced the predictive power of the other variables for depersonalization (Conger, 1974; Tabachnick & Fidell, 2007). Given the importance of the suppressor variable in the predictive validity of *perceived* educational diversity and *perceived* work values diversity, the *perceived* age diversity variable was included in the mediator models that follow.

H4.2:   *Perceived educational diversity between an individual and others within a workgroup is positively associated with EE and DP, and is negatively associated with PA.*

In hypothesis 4.2, two estimated parameters were found to be statistically significant: *perceived* educational diversity on depersonalization ($\beta = 0.12$)[24] and personal accomplishment ($\beta = -0.14$) (see Table 6.13). Nurses who *perceived* they were different from their coworkers with respect to their education reported more negative, callous, or distant attitudes toward people and had a diminished sense of personal accomplishment, both of which are indicative of burnout. *Perceived* educational diversity was not significantly associated with feeling emotionally overextended.

To gain a better understanding of the nurses who *perceived* their education was different from their coworkers', further bivariate analyses were conducted using nonparametric techniques. Nurses' *perceived* educational diversity scores did not vary significantly with their observed level of education ($\chi^2_{(2)} = 5.96$, $p > 0.05$) (see Figure 6.10). In other words, nurses' highest level of education was not associated with how they perceived their educational diversity.

---

24   The effect *perceived* educational diversity on depersonalization was influenced by the suppressor variable *perceived* age diversity.

Figure 6.10   Box Plot of *Perceived* Educational Diversity by Observed Nursing Education
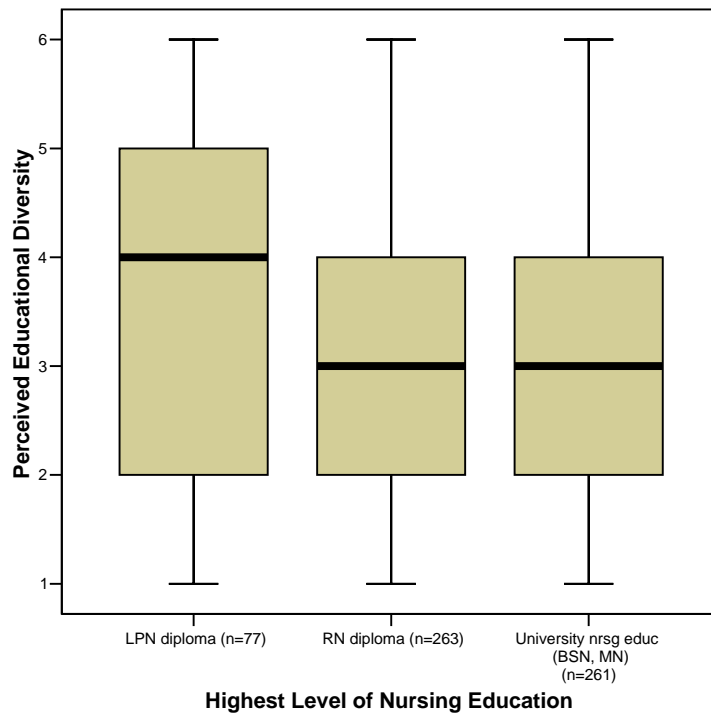
H4.3:   *Perceived ethnic/racial diversity between an individual and others within a workgroup is positively associated with EE and DP, and is negatively associated with PA.*

No direct paths were found to be statistically significant between *perceived* ethnic/racial diversity and burnout (see Table 6.13). Nurses who *perceived* themselves to be different from their coworkers with respect to their ethnicity/race did not feel emotionally overextended, display distant and callous attitudes toward others, or experience a diminished sense of personal accomplishment.

H4.4:   *Perceived work values diversity between an individual and others within a workgroup is positively associated with EE and DP, and is negatively associated with PA.*

All the direct effects specified in Hypothesis 4.4 were found to be statistically significant: *perceived* work values diversity on emotional exhaustion ($\beta = 0.18$), depersonalization ($\beta = 0.22$),[25] and personal accomplishment ($\beta = -0.21$) (see Table 6.13). Nurses

who *perceived* themselves to be different from their coworkers with respect to their work values reported holding more distant, negative, and callous attitudes toward others, were emotionally exhausted, and had a tendency to evaluate themselves negatively – all indicative of burnout. The *perceived* work values diversity scores were significantly associated with the average total scores on the *Contemporary Work Values* scale ($r = -0.08$, $p \le 0.05$), although the strength of the association was very modest. *Perceived* work values diversity was not statistically associated with *actual* work values diversity (D-score) (see Table 5.17).

6.4.2.2   Ordering the Exogenous Variables in Terms of their Importance

The Pratt Index (*d*) (Thomas, Hughes, & Zumbo, 1998) was used to determine the relative importance of each of the *perceived* diversity variables in explaining emotional exhaustion, depersonalization, and personal accomplishment (see Table 6.16). The results indicated that the very small amount of variance explained in emotional exhaustion ($R^2 = 3\%$) was explained entirely by *perceived* work values diversity ($d = 100\%$). Personal accomplishment ($R^2 = 7\%$) was also predominantly explained by *perceived* work values diversity ($d = 69\%$) and, to a lesser extent, by *perceived* educational diversity ($d = 36\%$). Although little of the variance was accounted for, depersonalization ($R^2 = 7\%$) was explained by *perceived* diversity in work values ($d = 58\%$), *perceived* age diversity ($d = 22\%$), and *perceived* diversity in education ($d = 21\%$). In light of the suppressor influence of *perceived* age diversity, the Pratt Index was calculated for depersonalization with only the *perceived* age diversity and *perceived* educational diversity variables included in the model (for more information about the Pratt Index with suppressor variables see Thomas et al. (1998)). In this model, *perceived* educational diversity ($d = 77\%$) was more important than *perceived* age diversity ($d = 23\%$), which was expected, given that it was a suppressor variable.[26] In a model including only *perceived* work values diversity and *perceived* age diversity in relation to depersonalization, the same effect was found:

---

[25]   The effect of *perceived* work values diversity on depersonalization was influenced by the suppressor variable, *perceived* age diversity.

[26]   Suppressor variables have a relatively small value for *d* and a standardized parameter estimate in comparison with the values of other exogenous variables that are deemed important (Thomas et al., 1998; Zumbo, 2007).

perceived work values diversity had a relatively higher Pratt Index ($d = 87\%$) than did *perceived* age diversity ($d = 13\%$). From these analyses, it can be concluded that the *perceived* differences in work values variable was the most important explanatory variable in explaining depersonalization, while, to a lesser degree, *perceived* educational diversity was more important than *perceived* age diversity, which acted as a suppressor variable.

Table 6.16   Relative Importance of *Perceived* Diversity Variables in Explaining Burnout

	β	r	R^2	d
EMOTIONAL EXHAUSTION ($R^2 = 3\%$)				
Perceived Age Diversity	-0.06	-0.01	0.03	2%
Perceived Educational Diversity	-0.01	0.04	0.03	-1%
Perceived Ethnic/Racial Diversity	-0.02	0.01	0.03	-1%
Perceived Work Values Diversity	0.18	0.16	0.03	100%
DEPERSONALIZATION ($R^2 = 7\%$)				
Perceived Age Diversity	-0.19	-0.09	0.07	22%[a]
Perceived Educational Diversity	0.12	0.13	0.07	21%
Perceived Ethnic/Racial Diversity	-0.04	0.01	0.07	-1%
Perceived Work Values Diversity	0.22	0.18	0.07	58%
PERSONAL ACCOMPLISHMENT ($R^2 = 7\%$)				
Perceived Age Diversity	0.07	-0.03	0.07	-3%
Perceived Educational Diversity	-0.14	-0.18	0.07	36%
Perceived Ethnic/Racial Diversity	0.05	-0.03	0.07	-2%
Perceived Work Values Diversity	-0.21	-0.22	0.07	69%

Note. $N = 603$. β = standardized regression coefficient, r = estimated simple correlation with the latent burnout variables and d = Pratt index. The Pratt Index can be negative; however, only those values of a large magnitude are of interest (Thomas et al., 1998).
[a]Suppressor variable.

6.4.2.3   Summary

Model 4 demonstrated acceptable fit with the data (see Table 6.12). Figure 6.11 depicts a summary model of the significant pathways, based on the parameter estimates found to be statistically significant. The effects of *perceived* educational diversity on depersonalization and personal accomplishment were statistically significant (Hypothesis 4.2). As well, *perceived* work values diversity was significantly associated with the three key aspects of burnout: emotional exhaustion, depersonalization, and personal accomplishment (Hypothesis 4.4). Feelings of being emotionally overextended were explained entirely by *perceived* diversity in work values. *Perceived* work values diversity was also the most important variable that explained the distant, negative, and callous attitudes displayed by nurses toward people

(including their clients) and the tendency to self-evaluate negatively. To a lesser extent, *perceived* educational diversity was important in explaining depersonalization and personal accomplishment. *Perceived* differences in work values and education were thus the key pathways to examine further in regards to the process by which they may lead to burnout. The significant relationships established in this portion of the analysis represent the first condition for determining whether a mediation effect is in place. The following sections of this chapter present the findings of the mediator-model analyses (Conditions 2, 3, and 4). Because of its role as a suppressor variable, the *perceived* age diversity variable was included in the mediator-model analyses. *Perceived* ethnic/racial diversity was initially included in the analyses of the mediator models; it was removed once its nonsignificance was confirmed.

Figure 6.11   Significant Pathways for Model 4: The Effects of *Perceived* Diversity on Burnout

PAge = *Perceived* age diversity
PEduc = *Perceived* educational diversity
PEth = *Perceived* ethnic/racial diversity
PVal = *Perceived* work values diversity

EE = Emotional exhaustion
DP = Depersonalization
PA = Personal accomplishment

⟶ statistically significant pathway
----▸ suppressor variable influence
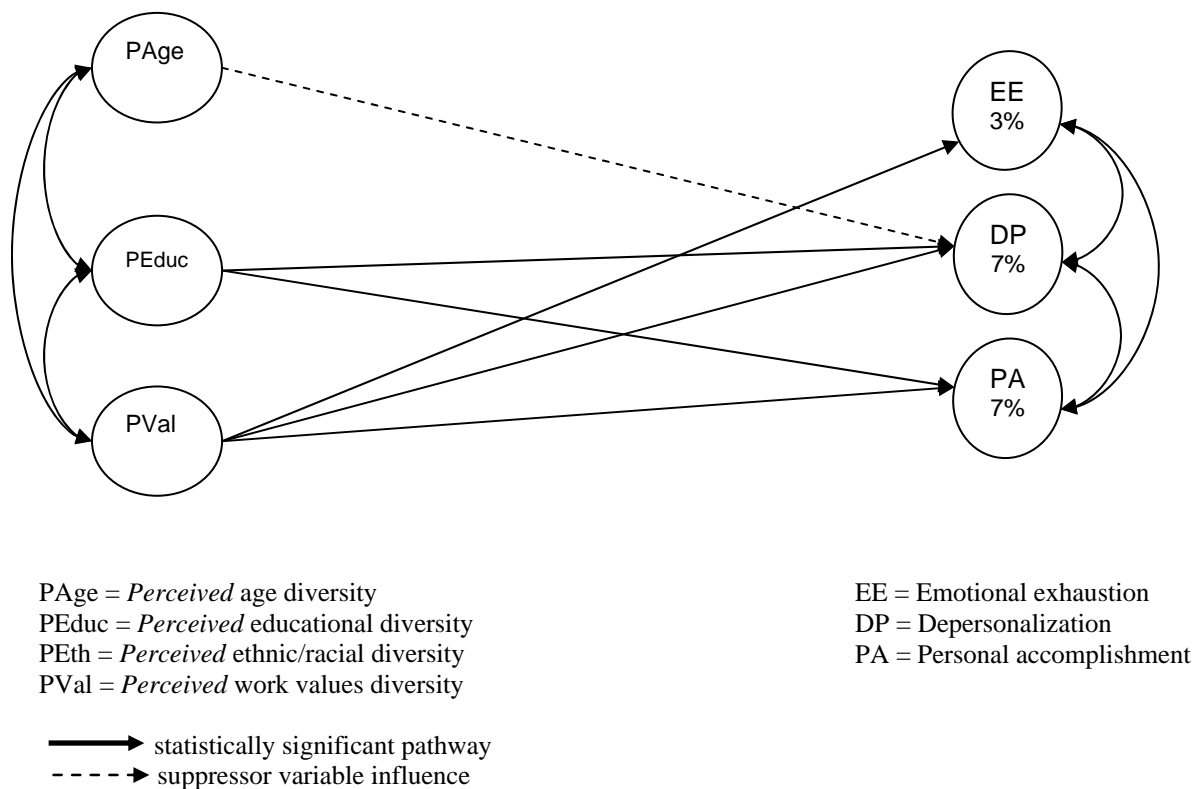
6.4.3 Model 5: The Effects of *Perceived* Relational Diversity on Burnout as Mediated by Intragroup Conflict

Intragroup Relationship Conflict (Model 5a, Figure 6.6)

H5.1a: *The effects of perceived age diversity on EE, DP, and PA are mediated by individuals' perceptions of relationship conflict within the workgroup.*

H5.2a: *The effects of perceived educational diversity on EE, DP, and PA are mediated by individuals' perceptions of relationship conflict within the workgroup.*

H5.3a: *The effects of perceived ethnic/racial diversity on EE, DP, and PA are mediated by individuals' perceptions of relationship conflict within the workgroup.*

H5.4a: *The effects of perceived work values diversity on EE, DP, and PA are mediated by individuals' perceptions of relationship conflict within the workgroup.*

Intragroup Task Conflict (Model 5b, Figure 6.7)

H5.1b: *The effects of perceived age diversity on EE, DP, and PA are mediated by individuals' perceptions of task conflict within the workgroup.*

H5.2b: *The effects of perceived educational diversity on EE, DP, and PA are mediated by individuals' perceptions of task conflict within the workgroup.*

H5.3b: *The effects of perceived ethnic/racial diversity on EE, DP, and PA are mediated by individuals' perceptions of task conflict within the workgroup.*

H5.4b: *The effects of perceived work values diversity on EE, DP, and PA are mediated by individuals' perceptions of task conflict within the workgroup.*

In the previous section of this chapter, I tested model fit and examined the overall direct effects for the *perceived* diversity variables on burnout (Condition 1). To follow are the tests for the indirect effects (Conditions 2 and 3) and the total indirect effects (Condition 4).

6.4.3.1   Condition 2

Although not in the direction hypothesized, the indirect effects of *perceived* age diversity on **intragroup** *relationship* conflict ($\beta = -0.09$) and **intragroup** *task* conflict ($\beta = -0.12$) were all statistically significant (Hypotheses 5.1a and 5.1b) (see Table 6.17 to Table 6.20). There were no statistically significant indirect effects of *perceived* educational diversity or *perceived* ethnic/racial diversity on **intragroup** *relationship* conflict on *task* conflict. The second requirement for mediation with regards to Hypotheses 5.1a, 5.2a, 5.3a, 5.1b, 5.2b, and 5.3b was not met for these two variables. For hypothesis 5.4a and 5.4b, however, a statistically significant

association was found for *perceived* work values on both **intragroup** *relationship* conflict (β = 0.42) and **intragroup** *task* conflict (β = 0.47) (see Table 6.17 to Table 6.20).

6.4.3.2   Condition 3

The indirect effects of **intragroup** *relationship* conflict were statistically significant for both emotional exhaustion (β = 0.31) and depersonalization (β = 0.21) (see Table 6.17 to Table 6.20). Similar findings were determined for **intragroup** *task* conflict on emotional exhaustion (β = 0.36) and depersonalization (β = 0.24). Neither **intragroup** *relationship* nor **intragroup** *task* conflict was found to contribute significantly to a diminished sense of personal accomplishment (see Table 6.17 to Table 6.20).

6.4.3.3   Condition 4

The total indirect effects were statistically significant for the following mediating relationships: *perceived* age diversity → **intragroup** *relationship* conflict → emotional exhaustion (β = -0.03), *perceived* age diversity → **intragroup** *task* conflict → emotional exhaustion (β = -0.04), and *perceived* age diversity → **intragroup** *task* conflict → depersonalization (β = -0.04) (see Table 6.19 and Table 6.20). These effects, however, were again in a direction other than that hypothesized. Hypotheses 5.1a and 5.1b were thus rejected. The parameter estimates for the total indirect effects of *perceived* educational diversity (Hypotheses 5.2a and 5.2b) (see Table 6.19 to Table 6.20) and *perceived* ethnic/racial diversity (Hypotheses 5.3a and 5.3b) were not statistically significant. Although *perceived* educational diversity had an overall direct effect on depersonalization and personal accomplishment, the process by which this occurred was not through **intragroup** *relationship* or *task* conflict. It was determined that *perceived* ethnic/racial diversity had no direct effect on the aspects of burnout; neither could any indirect (mediating) effects be attributed to **individual** *relationship* (Hypothesis 5.3a) or *task* conflict (Hypothesis 5.3b). To test the simplest model possible, Model 5 was thus modified to exclude *perceived* ethnic/racial diversity as an exogenous variable.

For Hypothesis 5.4a, the total indirect effects were statistically significant for two of the three mediating pathways involving **intragroup** *relationship* conflict: *perceived* work values diversity → **intragroup** *relationship* conflict → emotional exhaustion (β = 0.13) and *perceived* work values diversity → **intragroup** *relationship* conflict → depersonalization (β = 0.09) (see

180

Table 6.19). The total indirect effects of the *perceived* work values diversity → **intragroup** *task* conflict → burnout pathways (Hypothesis 5.4b) were significant for emotional exhaustion ($\beta = 0.17$) and depersonalization ($\beta = 0.11$) (see Table 6.20). These findings were indicative of partial mediation by **intragroup** *relationship* and *task* conflict. In other words, the effect of *perceived* work values diversity on emotional exhaustion was partially mediated (76%) by **intragroup** *relationship* conflict, as was depersonalization (43%) (see Table 6.19). The effect of *perceived* work values diversity on emotional exhaustion was almost completely mediated (94%) by **intragroup** *task* conflict. The *perceived* work values diversity effect on depersonalization was partially mediated by **intragroup** *task* conflict (52%) (see Table 6.20). Nurses who *perceived* they were different from their coworkers in terms of their work values experienced more emotional exhaustion and depersonalization than did their counterparts as a result of the **intragroup** *relationship* and *task* conflict that arose within the workgroup. *Perceived* work values diversity also led to a diminished sense of personal accomplishment, but the process by which this occurred was not mediated through **intragroup** *relationship* or *task* conflict.

Table 6.17   **Unstandardized and Standardized Parameter Estimates for Model 5a: The Direct and Indirect Effects of *Perceived* Relational Diversity on Burnout as Mediated by Intragroup *Relationship* Conflict**

Latent variable path	B	β	Sign level (*p*)	95% CI (β)	
				Lower	Upper
PAge → EE	-0.06	-0.04	0.32	-0.12	0.04
PAge → DP	-0.23	-0.17	0.00	-0.26	-0.08
PAge → REL	-0.18	-0.09	0.03	-0.17	-0.01
PEduc → DP	0.14	0.10	0.04	0.01	0.20
PEduc → PA	-0.11	-0.10	0.04	-0.19	-0.00
PEduc → REL	0.05	0.02	0.61	-0.07	0.11
PVal → EE	0.04	0.04	0.35	-0.05	0.13
PVal → DP	0.11	0.12	0.02	0.02	0.23
PVal → PA	-0.13	-0.19	0.00	-0.28	-0.10
PVal → REL	0.55	0.42	0.00	0.34	0.50
REL → EE	0.22	0.31	0.00	0.23	0.39
REL → DP	0.14	0.21	0.00	0.12	0.31
REL → PA	0.01	0.03	0.61	-0.07	0.13

Note. $N = 603$. PAge → PA, PEduc → EE, and all *perceived* ethnic/racial diversity pathways were initially included in the model; however, to simplify the model, these pathways were removed after their non-significance was confirmed. Correlations for the exogenous and endogenous latent variables were all statistically significant ($p \leq 0.001$): PAge → PEduc = 0.32, PAge → PVal = 0.31, PEduc → PVal = 0.38, EE → DP = 0.56, DP → PA = -0.46, and EE → PA = -0.15.

Table 6.18   **Unstandardized and Standardized Parameter Estimates for Model 5b: The Direct and Indirect Effects of *Perceived* Relational Diversity on Burnout as Mediated by Intragroup *Task* Conflict**

Latent variable path	B	β	Sign level (*p*)	95% CI (β)	
				Lower	Upper
PAge → EE	-0.04	-0.02	0.55	-0.10	0.06
PAge → DP	-0.22	-0.16	0.00	-0.25	-0.07
PAge → TSK	-0.19	-0.12	0.01	-0.20	-0.03
PEduc → DP	0.15	0.11	0.03	0.01	0.21
PEduc → PA	-0.11	-0.10	0.05	-0.19	-0.00
PEduc → TSK	0.01	-0.01	0.92	-0.10	0.09
PVal → EE	0.01	0.01	0.91	-0.09	0.10
PVal → DP	0.09	0.10	0.07	-0.01	0.20
PVal → PA	-0.13	-0.19	0.00	-0.28	-0.10
PVal → TSK	0.49	0.47	0.00	0.39	0.56
TSK → EE	0.33	0.36	0.00	0.27	0.45
TSK → DP	0.20	0.24	0.00	0.14	0.34
TSK → PA	0.01	0.02	0.72	-0.09	0.12

Note. $N = 603$. PAge → PA, PEduc → EE, and all *perceived* ethnic/racial diversity pathways were initially included in the model; however, to simplify the model, these pathways were removed after their non-significance was confirmed. Correlations for the exogenous and endogenous latent variables were all statistically significant ($p \leq 0.001$): PAge → PEduc = 0.31, PAge → PVal = 0.31, PEduc → PVal = 0.38, EE → DP = 0.55, DP → PA = -0.46, and EE → PA = -0.15.

Table 6.19   **Standardized Mediation Effects for Model 5a: The Effects of *Perceived* Relational Diversity on Burnout as Mediated by Intragroup *Relationship* Conflict**

Latent variable path	Direct effect[a]	Indirect effect[b]	Indirect effect[c]	Total indirect effect[d]	Total indirect effects 95% CI Lower	Total indirect effects 95% CI Upper	Total effect[e] (%)	Hypothesis supported
5.1A PERCEIVED AGE DIVERSITY								
PAge → REL → EE	-0.04	-0.09[*]	0.31[***]	-0.03[*]	-0.05	0.00	-0.07 (43%)	Rejected[f]
PAge → REL → DP	-0.17[***]	-0.09[*]	0.21[***]	-0.02	-0.04	0.00	-0.19	Rejected
5.2A PERCEIVED EDUCATIONAL DIVERSITY								
PEduc → REL → DP	0.10[*]	0.02	0.21[***]	0.01	-0.01	0.02	0.11	Rejected
PEduc → REL → PA	-0.10[*]	0.02	0.03	0.00	-0.00	0.00	-0.10	Rejected
5.4A PERCEIVED WORK VALUES DIVERSITY								
PVal → REL → EE	0.04	0.42[***]	0.31[***]	0.13[***]	0.09	0.17	0.17 (76%)	Accepted
PVal → REL → DP	0.12[*]	0.42[***]	0.21[***]	0.09[***]	0.05	0.13	0.21 (43%)	Accepted
PVal → REL → PA	-0.19[***]	0.42[***]	0.03	0.01	-0.03	0.05	-0.18	Rejected

Note. N = 603. PAge → REL → PA and PEduc → REL → EE pathways were initially included in the model; however, to simplify the model, these pathways were removed once the non-significance of the overall direct effect and total indirect effects was confirmed. R^2 for EE = 0.11, DP = 0.11, PA = 0.06, and REL = 0.17.

[a]Direct effect (*c'*) from exogenous variable to endogenous variable while controlling for mediating variable.

[b]Indirect effect (*a*) from the exogenous variable to the mediating variable.

[c]Indirect effect (*b*) from the mediating variable to the endogenous variable.

[d]Total indirect effect (*ab*) is the product of the indirect effects (*a*) and the indirect effects (*b*).

[e]The sum of the direct effect and total indirect effect. The percentage represents the degree of mediation (effect size) (see page 101).

[f]Although the relationship was statistically significant, the significant was not in the direction hypothesized. According to MacKinnon et al. (2000), when the values of c > *c'* (e.g., PAge → REL → EE, -0.06 > -0.04) (values for *c* are found in Table 6.13) and the total indirect effect (*ab*) and the direct effect (*c'*) have negative values, then the finding may be due to chance.

[*]$p \leq 0.05$ [**]$p \leq 0.01$ [***]$p \leq 0.001$.

Table 6.20 **Standardized Mediation Effects for Model 5b: The Effects of *Perceived* Relational Diversity on Burnout as Mediated by Intragroup *Task* Conflict**

Latent Variable Path	Direct Effect[a]	Indirect Effect[b]	Indirect Effect[c]	Total Indirect Effect[d]	Total Indirect Effects 95% CI Lower	Upper	Total Effect[e]	Hypothesis Supported
5.1b *Perceived* Age Diversity								
PAge → TSK → EE	-0.02	-0.12**	0.36***	-0.04**	-0.07	-0.01	-0.06 (67%)	Rejected[f]
PAge → TSK → DP	-0.16***	-0.12**	0.24***	-0.03*	-0.05	-0.01	-0.19 (16%)	Rejected[f]
5.2b *Perceived* Educational Diversity								
PEduc → TSK → DP	0.11*	-0.01	0.24***	-0.00	-0.02	0.02	0.11	Rejected
PEduc → TSK → PA	-0.10*	-0.01	0.02	0.00	-0.00	0.00	-0.10	Rejected
5.4b *Perceived* Work Values Diversity								
PVal → TSK → EE	0.01	0.47***	0.36***	0.17***	0.12	0.23	0.18 (94%)	Accepted
PVal → TSK → DP	0.10	0.47***	0.24***	0.11***	0.06	0.16	0.21 (52%)	Accepted
PVal → TSK → PA	-0.19***	0.47***	0.02	0.01	-0.04	0.06	-0.18	Rejected

Note. $N = 603$. PAge → TSK → PA and PEduc → TSK → EE pathways were initially included in the model; however, to simplify the model, these pathways were removed once the non-significance of the overall direct effect and total indirect effects was confirmed. R^2 for EE = 0.13, DP = 0.12, PA = 0.06, and TSK = 0.20.
[a]Direct effect (*c'*) from exogenous variable to endogenous variable while controlling for mediating variable.
[b]Indirect effect (*a*) from the exogenous variable to the mediating variable.
[c]Indirect effect (*b*) from the mediating variable to the endogenous variable.
[d]Total indirect effect (*ab*) is the product of the indirect effects (*a*) and the indirect effects (*b*).
[e]The sum of the direct effect and total indirect effect. The percentage represents the degree of mediation (effect size) (see page 101).
[f]Although the relationship was statistically significant, the effect was not in the direction hypothesized. When the values of c > c' (values for *c* are found in Table 6.13) and the total indirect effect (ab) and the direct effect (*c'*) have negative values, the finding may be due to chance (MacKinnon et al., 2000).
*$p \le 0.05$ **$p \le 0.01$ ***$p \le 0.001$.

6.4.3.4   Summary

The mediator model involving **intragroup** *relationship* and *task* conflict (Models 5a and 5b) demonstrated acceptable fit with the data (see Table 6.12). Figure 6.12 and Figure 6.13 depict the final structural model illustrating the significant mediator pathways. Although *perceived* educational diversity led to depersonalization (i.e., distant, negative, and callous attitudes) and a diminished sense of personal accomplishment it was not mediated by **intragroup** *relationship* or *task* conflict. There was support, however, for the hypothesis that the process by which *perceived* work values diversity leads to emotional exhaustion and depersonalization is through both **intragroup** *relationship* and *task* conflict. Nurses who *perceived* they were different from their coworkers with respect to their work values identified greater amounts of *relationship* and *task* conflict with their coworkers, which led to them feeling emotionally overextended and displaying distant, negative, and callous attitudes toward people (e.g., clients). The relationship between *perceived* work values diversity and personal accomplishment, on the other hand, was not mediated by **intragroup** *relationship* or *task* conflict.

Figure 6.12   Significant Pathways for Model 5a: The Effects of *Perceived* Diversity on Burnout as Mediated by Intragroup *Relationship* Conflict

PAge = *Perceived* age diversity   REL CON = **Intragroup** *Relationship* conflict   EE = Emotional exhaustion
PEduc = *Perceived* educational diversity   DP = Depersonalization
PEth = *Perceived* ethnic/racial diversity   PA = Personal accomplishment
PVal = *Perceived* work values diversity

statistically significant pathway
statistically nonsignificant pathway
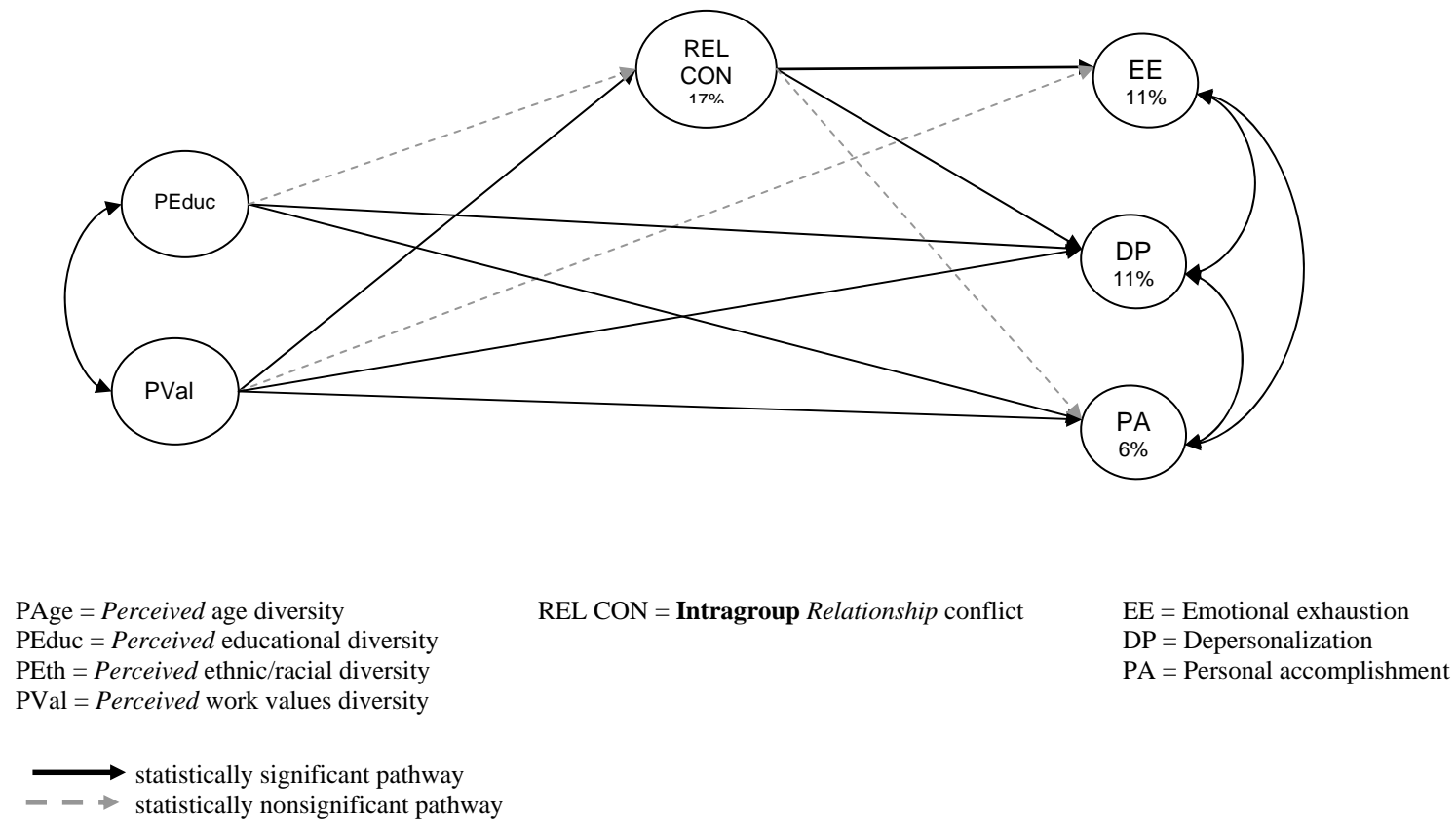
Figure 6.13   Significant Pathways for Model 5b: The Effects of *Perceived* Diversity on Burnout as Mediated by Intragroup *Task* Conflict
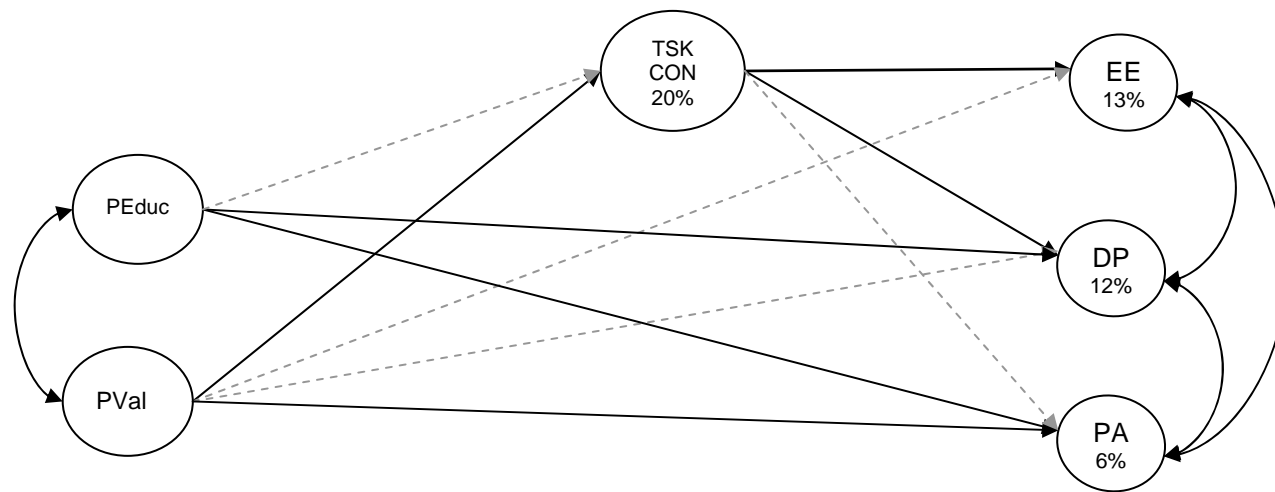
PAge = *Perceived* age diversity
PEduc = *Perceived* educational diversity
PEth = *Perceived* ethnic/racial diversity
PVal = *Perceived* work values diversity

TSK CON = **Intragroup** *Task* conflict

EE = Emotional exhaustion
DP = Depersonalization
PA = Personal accomplishment

statistically significant pathway
statistically nonsignificant pathway

6.4.4 Model 6: The Effects of *Perceived* Relational Diversity on Burnout as Mediated by Individual Conflict

Individual Relationship Conflict (Model 6a, see Figure 6.6)

H6.1a: The effects of *perceived* age diversity on EE, DP, and PA are mediated by individuals' involvement in *relationship* conflict.

H6.2a: The effects of *perceived* educational diversity on EE, DP, and PA are mediated by individuals' involvement in *relationship* conflict.

H6.3a: The effects of *perceived* ethnic/racial diversity on EE, DP, and PA are mediated by individuals' involvement in *relationship* conflict.

H6.4a: The effects of *perceived* work values diversity on EE, DP, and PA are mediated by individuals' involvement in *relationship* conflict.

Individual Task Conflict (Model 6b, see Figure 6.7)

H6.1b: The effects of *perceived* age diversity on EE, DP, and PA are mediated by individuals' involvement in *task* conflict.

H6.2b: The effects of *perceived* educational diversity on EE, DP, and PA are mediated by individuals' involvement in *task* conflict.

H6.3b: The effects of *perceived* ethnic/racial diversity on EE, DP, and PA are mediated by individuals' involvement in *task* conflict.

H6.4b: The effects of *perceived* work values diversity on EE, DP, and PA are mediated by individuals' involvement in *task* conflict.

Testing the relationships between the *perceived* diversity variables and the three aspects of burnout (Model 4) established the overall direct effects that were statistically significant. The effects identified as statistically significant provide information as to whether the first conditions for a mediation effect are in place. The overall direct effects that were statistically significant include: (a) *perceived* educational diversity on depersonalization and personal accomplishment and (b) *perceived* work values diversity on emotional exhaustion, depersonalization, and personal accomplishment. In this section, I present the findings of the mediator-model analyses for **individual** conflict (Model 6) (Conditions 2, 3, and 4).

6.4.4.1 Condition 2

Counter to Hypotheses 6.1a and 6.2a, *perceived* diversity in age and education were not significantly associated with **individual** *relationship* conflict (see Table 6.21 and Table 6.23). The same pattern held true for the mediator **individual** *task* conflict (Hypotheses 6.1b to

6.2b) (see Table 6.22 and Table 6.24). *Perceived* ethnic/racial diversity was not associated with either **individual** *relationship* or *task* conflict (Hypotheses 6.3a and 6.3b). Consistent with Model 5, the effects of *perceived* work values diversity on both **individual** *relationship* conflict ($\beta = 0.32$) (Hypothesis 6.4a) and **individual** *task* conflict ($\beta = 0.38$) (Hypothesis 6.4b) were the only statistically significant indirect effects found (see Table 6.21 to Table 6.24).

6.4.4.2 Condition 3

The indirect effects of **individual** *relationship* conflict were statistically significant for emotional exhaustion ($\beta = 0.31$), depersonalization ($\beta = 0.38$), and personal accomplishment ($\beta = -0.17$) (see Table 6.21 and Table 6.23). **Individual** *task* conflict generated similar statistically significant effects on all aspects of burnout ($\beta = 0.34$, 0.39, and -0.16, respectively) (see Table 6.22 and Table 6.24).

6.4.4.3 Condition 4

The total indirect effects for *perceived* age diversity → **individual** *relationship* conflict → emotional exhaustion ($\beta = -0.03$) and *perceived* age diversity → **individual** *relationship* conflict → depersonalization ($\beta = -0.04$) were statistically significant (see Table 6.23 to Table 6.24). Because these relationships were opposite in direction to what was postulated, Hypothesis 6.1a was rejected. When **individual** *task* conflict was modelled as the mediator similar findings resulted and the hypothesis was rejected (Hypothesis 6.1b). Because both Conditions 2 and 3 are essential to establish mediation, Hypotheses 6.2a and 6.2b were rejected. Although *perceived* educational diversity led to depersonalization and diminishing personal accomplishment (overall direct effect), the process by which this occurred was not mediated by individuals' involvement in *relationship* or *task* conflict.

As previously noted, no overall direct effects were established between *perceived* ethnic/racial diversity and burnout (Hypothesis 4.3). To further test for mediating effect, however, the analysis continued by examining the indirect effects and total indirect effects. No statistically significant indirect pathways on total indirect effects were identified. Hypotheses 6.3a and 6.3b were thus rejected and Model 6 was subsequently modified to exclude *perceived* ethnic/racial diversity.

In Model 6, the direct, mediated paths between *perceived* work values diversity and the three aspects of burnout were significant for both mediators, **individual** *relationship* conflict (emotional exhaustion, β = 0.10; depersonalization, β = 0.12; and personal accomplishment, β = -0.05) and **individual** *task* conflict (emotional exhaustion, β = 0.13; depersonalization, β = 0.15; and personal accomplishment, β = -0.06) (see Table 6.23 and Table 6.24). The inclusion of **individual** *relationship* and *task* conflict as mediators reduced the direct effect of *perceived* work values diversity on emotional exhaustion, depersonalization, and personal accomplishment (Hypotheses 6.4a and 6.4b). The effects of *perceived* work values diversity on burnout can thus be seen as being partially mediated by **individual** *relationship* and *task* conflict.

Overall, more than one half of the effects of *perceived* work values diversity on emotional exhaustion (59%) and depersonalization (57%) were explained by **individual** *relationship* conflict (see Table 6.23). To a lesser extent, **individual** *relationship* conflict provided some insight into how *perceived* work values diversity also led to a sense of diminished personal accomplishment (28%) (see Table 6.23). The total effect of *perceived* work values diversity on emotional exhaustion, depersonalization, and personal accomplishment were partially mediated by individuals' involvement in *task* conflict (76%, 68%, and 32%, respectively) (see Table 6.24). In summary, many nurses who *perceived* they were different from their coworkers, with respect to their work values, were more involved in *relationship* and *task* conflict than their counterparts who *perceived* they were relatively similar.

Table 6.21   **Unstandardized and Standardized Parameter Estimates for Model 6a: The Direct and Indirect Effects of *Perceived* Relational Diversity on Burnout as Mediated by Individual *Relationship* Conflict**

Latent variable path	B	β	Sign level (*p*)	95% CI (β)	
				Lower	Upper
PAge → EE	-0.07	-0.05	0.26	-0.13	0.03
PAge → DP	-0.21	-0.15	0.00	-0.24	-0.07
PAge → REL	-0.31	-0.10	0.04	-0.19	-0.01
PEduc → DP	0.11	0.08	0.11	-0.02	0.17
PEduc → PA	-0.10	-0.09	0.06	-0.18	0.00
PEduc → REL	0.26	0.08	0.13	-0.02	0.18
PVal → EE	0.07	0.07	0.12	-0.02	0.15
PVal → DP	0.08	0.09	0.05	-0.00	0.19
PVal → PA	-0.10	-0.13	0.00	-0.22	-0.05
PVal → REL	0.66	0.32	0.00	0.23	0.41
REL → EE	0.14	0.31	0.00	0.23	0.40
REL → DP	0.16	0.38	0.00	0.29	0.47
REL → PA	-0.06	-0.17	0.00	-0.27	-0.07

Note. N = 603. PAge → PA, PEduc → EE, and all *perceived* ethnic/racial diversity pathways were initially included in the model; however, to simplify the model, these pathways were removed once their non-significance was confirmed. Correlations for the exogenous and endogenous latent variables were all statistically significant ($p \leq 0.001$) unless otherwise specified: PAge → PEduc = 0.32, PAge → PVal = 0.31, PEduc → PVal = 0.38, EE → DP = 0.52, DP → PA = -0.42, and EE → PA = -0.09 (not significant).

Table 6.22   Unstandardized and Standardized Parameter Estimates for Model 6b: The Direct and Indirect Effects of *Perceived* Relational Diversity on Burnout as Mediated by Individual *Task* Conflict

Latent variable path	B	β	Sign level (*p*)	95% CI (β)	
				Lower	Upper
PAge → EE	-0.06	-0.04	0.37	-0.12	0.04
PAge → DP	-0.20	-0.15	0.00	-0.23	-0.06
PAge → TSK	-0.22	-0.11	0.01	-0.19	-0.02
PEduc → DP	0.12	0.09	0.08	-0.01	0.18
PEduc → PA	-0.11	-0.10	0.05	-0.19	-0.00
PEduc → TSK	0.11	0.05	0.24	-0.04	0.14
PVal → EE	0.04	0.04	0.35	-0.05	0.13
PVal → DP	0.06	0.07	0.17	-0.03	0.16
PVal → PA	-0.10	-0.13	0.01	-0.22	-0.04
PVal → TSK	0.49	0.38	0.00	0.29	0.46
TSK → EE	0.25	0.34	0.00	0.26	0.42
TSK → DP	0.26	0.39	0.00	0.30	0.48
TSK → PA	-0.09	-0.16	0.00	-0.26	-0.06

Note. *N* = 603. PAge → PA, PEduc → EE, and all *perceived* ethnic/racial diversity pathways were initially included in the model; however, to simplify the model, these pathways were removed once their non-significance was confirmed. Correlations for the exogenous and endogenous latent variables were all statistically significant (*p* ≤ 0.001) unless otherwise specified: PAge → PEduc = 0.32, PAge → PVal = 0.31, PEduc → PVal = 0.38, EE → DP = 0.52, DP → PA = -0.42, and EE → PA = -0.09 (not significant).

Table 6.23   Standardized Mediating Effects for Model 6a: The Effects of *Perceived* Diversity on Burnout as Mediated by Individual *Relationship* Conflict

Latent variable path	Direct effect[a]	Indirect effect[b]	Indirect effect[c]	Total indirect effect[d]	Total indirect effects 95% CI		Total effect[e]	Hypothesis supported
					Lower	Upper		
6.1a *Perceived* Age Diversity								
PAge → REL → EE	-0.05	-0.10*	0.31***	-0.03*	-0.06	-0.00	-0.08 (38%)	Rejected[f]
PAge → REL → DP	-0.15***	-0.10*	0.38***	-0.04*	-0.07	-0.00	-0.19 (21%)	Rejected[f]
6.2a *Perceived* Educational Diversity								
PEduc → REL → DP	0.08	0.08	0.3***	0.03	-0.01	0.07	0.11	Rejected
PEduc → REL → PA	-0.09	0.08	-0.17***	-0.01	-0.03	0.01	-0.10	Rejected
6.4a *Perceived* Work Values Diversity								
PVal → REL → EE	0.07	0.32***	0.31***	0.10***	0.06	0.14	0.17 (59%)	Accepted
PVal → REL → DP	0.09*	0.32***	0.38***	0.12**	0.07	0.17	0.21 (57%)	Accepted
PVal → REL → PA	-0.13***	0.32***	-0.17***	-0.05**	-0.09	-0.02	-0.18 (28%)	Accepted

Note. $N = 603$. PAge → REL → PA and PEduc → REL → EE pathways were initially included in the model; however, to simplify the model, these pathways were removed once the non-significance of the overall direct effect and total indirect effects was confirmed. R^2 for EE = 0.11, DP = 0.20, PA = 0.08, and REL = 0.11.

[a]Direct effect (*c'*) from exogenous variable to endogenous variable while controlling for mediating variable.

[b]Indirect effect (*a*) from the exogenous variable to the mediating variable.

[c]Indirect effect (*b*) from the mediating variable to the endogenous variable.

[d]Total indirect effect (*ab*) is the product of the indirect effects (*a*) and the indirect effects (*b*).

[e]The sum of the direct effect and total indirect effect. The percentage represents the degree of mediation (effect size) (see page 101).

[f]Although the relationship was statistically significant, the significance was not in the direction hypothesized. The findings may be due to chance when the values of *c* > *c'* (values for *c* are found in Table 6.13) and the total indirect effect (*ab*) and the direct effect (*c'*) have negative values (MacKinnon et al., 2000).

$^*p \leq 0.05$ $^{**}p \leq 0.01$ $^{***}p \leq 0.001$.

Table 6.24 **Standardized Mediating Effects for Model 6b: The Effects of *Perceived* Relational Diversity on Burnout as Mediated by Individual *Task* Conflict**

Latent variable path	Direct effect[a]	Indirect effect[b]	Indirect effect[c]	Total indirect effect[d]	Total indirect effects 95% CI		Total effect[e]	Hypothesis supported
					Lower	Upper		
6.1b *Perceived* Age Diversity								
PAge → TSK → EE	-0.04	-0.11**	0.34***	-0.04*	-0.07	-0.01	-0.08 (50%)	Rejected[f]
PAge → TSK → DP	-0.15***	-0.11**	0.39***	-0.04*	-0.08	-0.01	-0.19 (21%)	Rejected[f]
6.2b *Perceived* Educational Diversity								
PEduc → TSK → DP	0.09	0.05	0.39***	0.02	-0.01	0.06	0.11	Rejected
PEduc → TSK → PA	-0.10*	0.05	-0.16***	-0.01	-0.02	0.01	-0.11	Rejected
6.4b *Perceived* Work Values Diversity								
PVal → TSK → EE	0.04	0.38***	0.34***	0.13***	0.09	0.17	0.17 (76%)	Accepted
PVal → TSK → DP	0.07	0.38***	0.39***	0.15***	0.10	0.19	0.22 (68%)	Accepted
PVal → TSK → PA	-0.13**	0.38***	-0.16***	-0.06**	-0.10	-0.02	-0.19 (32%)	Accepted

Note. $N = 603$. PAge → TSK → PA and PEduc → TSK → EE pathways were initially included in the model; however, to simplify the model, these pathways were removed once the non-significance of the overall direct effect and total indirect effects was confirmed. R^2 for EE = 0.13, DP = 0.20, PA = 0.08, and TSK = 0.14.

[a]Direct effect (*c'*) from exogenous variable to endogenous variable while controlling for mediating variable.

[b]Indirect effect (*a*) from the exogenous variable to the mediating variable.

[c]Indirect effect (*b*) from the mediating variable to the endogenous variable.

[d]Total indirect effect (*ab*) is the product of the indirect effects (*a*) and the indirect effects (*b*).

[e]The sum of the direct effect and total indirect effect. The percentage represents the degree of mediation (effect size) (see page 101).

[f]Although the relationship was statistically significant, it was not in the direction hypothesized. The findings may be due to chance when the values of c > c' (values for *c* are found in Table 6.13) and the total indirect effect (*ab*) and the direct effect (*c'*) have negative values (MacKinnon et al., 2000).

$^*p \leq 0.05$ $^{**}p \leq 0.01$ $^{***}p \leq 0.001$.

6.4.4.4 Summary

The mediator model involving **individual** *relationship* and *task* conflict (Models 6a and 6b) demonstrated acceptable fit with the data (see Table 6.12). Although *perceived* educational diversity led to depersonalization (i.e., distant, negative, and callous attitudes) and diminished personal accomplishment, it was not mediated by **individual** *relationship* or *task* conflict (Hypotheses 6.2a and 6.2b) (see Figure 6.14 and Figure 6.15). Hypotheses 6.4a and 6.4b, however, were supported. *Perceived* differences in work values led to burnout, which was partially explained by individuals' involvement in *relationship* and *task* conflict. In contrast to *perceived* diversity in work values and education, *perceived* diversity in age (Hypotheses 6.1a and 6.1b) and ethnicity/race (Hypotheses 6.3a and 6.3b) did not predict burnout.

Figure 6.14   Significant Pathways for Model 6a: The Effects of *Perceived* Relational Diversity on Burnout as Mediated by Individual *Relationship* Conflict

PEduc = *Perceived* educational diversity   REL CON = **Individual** *Relationship* conflict   EE = Emotional exhaustion
PVal = *Perceived* work values diversity   DP = Depersonalization
                                                                                                PA = Personal accomplishment

⟶ statistically significant pathway
- - ⟶ statistically nonsignificant pathway
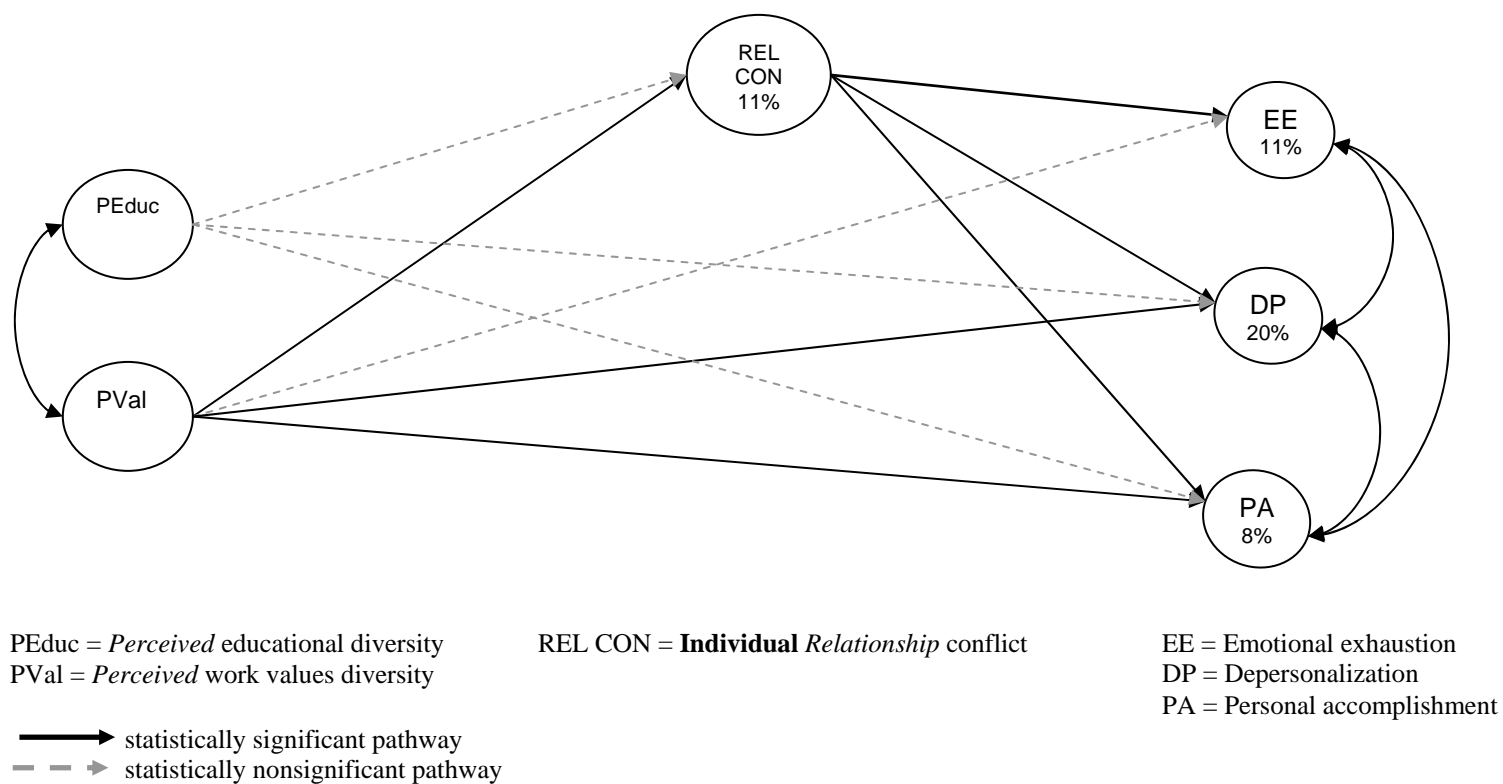
Figure 6.15 Significant Pathways for Model 6b: The Effects of *Perceived* Relational Diversity on Burnout as Mediated by Individual *Task* Conflict

PEduc = *Perceived* educational diversity   TSK CON = **Individual** *Task* conflict   EE = Emotional exhaustion
PVal = *Perceived* work values diversity   DP = Depersonalization
                                                                                                                                      PA = Personal accomplishment

→ statistically significant pathway
⇢ statistically nonsignificant pathway
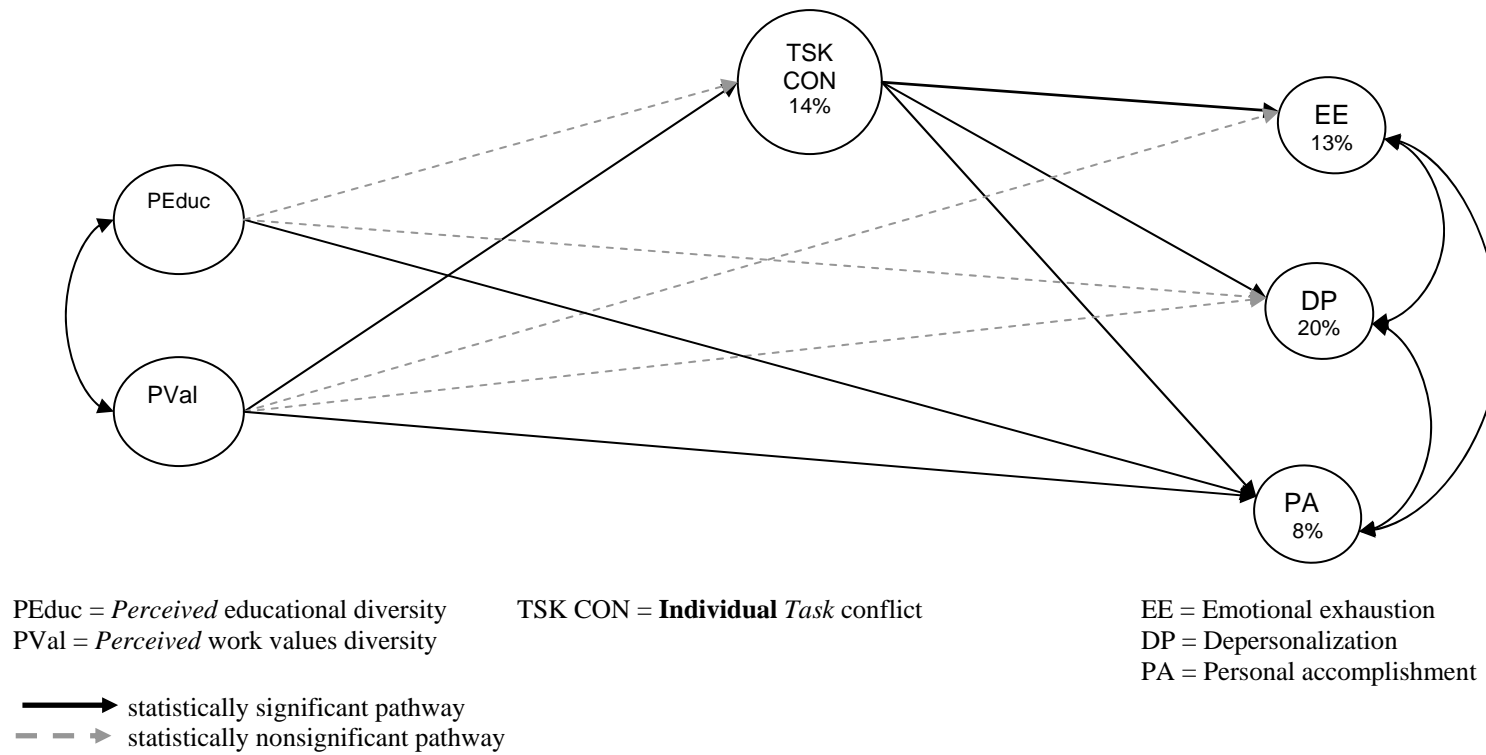
6.4.5 Summary of the Direct and Indirect Effects of *Perceived* Relational Diversity on Burnout

Adequate model fit was determined for the structural models 4, 5, and 6, which examined the effects of *perceived* diversity on burnout (see Table 6.12). Although *perceived* age diversity and *perceived* ethnic/racial diversity were not associated with burnout, *perceived* diversity in education led to certain aspects of burnout (depersonalization and personal accomplishment). This did not occur, however, as a result of individuals' perceptions of, or involvement in, *relationship* or *task* conflict. Nurses who *perceived* they were different with respect to their work values reported greater amounts of, and were more involved in, both *relationship* and *task* conflict. These conflicts led to their feeling emotionally overextended and displaying distant, negative, and callous attitudes toward others. Similarly, the relationships between greater *perceived* work values diversity and a diminished sense of personal accomplishment were partially mediated by individuals' involvement in *relationship* and *task* conflict with others in the workgroup. In summary, many nurses who believed that they held work values that were different from those of other nurses in their workgroup were more inclined to report burnout, which caused them to become involved in *relationship* and *task* conflict. *Perceived* diversity in age and ethnicity/race did not predict burnout.

6.5 Chapter Summary

Table 6.25 summarizes the hypotheses supported by this study. The salient attributes that were predictive of burnout were differences in education and work values. Specifically, *perceived* work values diversity was the only variable predictive of emotional exhaustion. *Perceived* work values diversity and *perceived* educational diversity explained depersonalization. *Actual* work values diversity also predicted depersonalization; however, the variance explained was minimal (2%). *Perceived* differences in education and work values were predictive of diminished personal accomplishment. To a lesser extent, a diminished sense of personal accomplishment was predicted by *actual* ethnic/racial diversity (variance explained = 3%). When the nurses perceived themselves to differ from their coworkers with respect to their work values, they were more likely to report individual and intragroup *relationship* and *task* conflict, which

led to evidence of their experiencing burnout. The degree to which the relationship between *perceived* work values diversity and burnout was mediated by **intragroup** conflict (relationship and task) (Model 5) ranged from 94% to 45% and by **individual** conflict (relationship and task) (Model 6) ranged from 76% to 28%. Both **intragroup** and **individual** conflict mediated the relationships between *perceived* work values diversity and emotional exhaustion and depersonalization. However, the work values diversity relationship with personal accomplishment was only mediated by **individual** conflict (relationship and task).

Table 6.25   Summary of Hypotheses Supported

DIRECT EFFECT MODELS	
Model 1	*Actual* diversity → burnout
H1.3	*Actual* ethnic/racial diversity between an individual and others within a workgroup is negatively associated with personal accomplishment.
H1.4	*Actual* work values diversity between an individual and others within a workgroup is positively associated with depersonalization.
Model 4	*Perceived* diversity → burnout
H4.2	*Perceived* educational diversity between an individual and others within a workgroup is positively associated with depersonalization.
	Perceived educational diversity between an individual and others within a workgroup is negatively associated with personal accomplishment.
H4.4	*Perceived* work values diversity between an individual and others in the workgroup is positively associated with emotional exhaustion.
	Perceived work values diversity between an individual and others within a workgroup is positively associated with depersonalization.
	Perceived work values diversity between an individual and others within a workgroup is negatively associated with personal accomplishment.
INDIRECT (MEDIATOR) EFFECT MODELS	
Model 5	*Perceived* diversity → **intragroup** conflict → burnout
H5.4a	The effect of *perceived* work values diversity on emotional exhaustion is mediated by individuals' perceptions of *relationship* conflict within the workgroup.
	The effect of *perceived* work values diversity on depersonalization is mediated by individuals' perceptions of *relationship* conflict within the workgroup.
H5.4b	The effect of *perceived* work values diversity on emotional exhaustion is mediated by individuals' perceptions of *task* conflict within the workgroup.
	The effect of *perceived* work values diversity on depersonalization is mediated by individuals' perceptions of *task* conflict within the workgroup.
Model 6	*Perceived* diversity → **individual** conflict → burnout
H6.4a	The effect of *perceived* work values diversity on emotional exhaustion is mediated by individuals' involvement in *relationship* conflict.
	The effect of perceived work values diversity on depersonalization is mediated by individuals' *involvement* in *relationship* conflict.
	The effect of *perceived* work values diversity on personal accomplishment is mediated by individuals' involvement in *relationship* conflict.

INDIRECT (MEDIATOR) EFFECT MODELS	
Model 6	*Perceived* diversity → **individual** conflict → burnout
H6.4b	The effect of *perceived* work values diversity on emotional exhaustion is mediated by individuals' involvement in $task$ conflict.
	The effect of *perceived* work values diversity on depersonalization is mediated by individuals' involvement in $task$ conflict.
	The effect of *perceived* work values diversity on personal accomplishment is mediated by individuals' involvement in $task$ conflict.

7   DISCUSSION

My purpose with this study was to extend the literature about diversity in the workplace by investigating whether diversity in nursing team members' age, education, ethnicity/race, or work values is directly or indirectly associated with conflict and nurses' feelings of burnout. In this final chapter, I review the major study findings, provide an overview of the strengths and limitations of the research, discuss the study results relative to other evidence, and highlight the theoretical and practical implications pertaining to diversity in the workplace. My recommendations for future research conclude the chapter.

7.1   Review of the Findings

In the past 20 years, the nursing workforce has become more diverse. Demographic trends in the composition of the nursing workforce have shifted in terms of nurses' age, level of educational preparation, and ethnicity/race. Accompanying these demographic changes are variations in nurses' attitudes toward their work and careers. Despite the increasing diversity in the workplaces there is a lack of research exploring the consequences of such diversity. The current study was based on two complementary theories: social identity theory and similarity–attraction theory. According to these theories, outcomes such as isolation, exclusion, othering, and the formation of negative opinions of others may occur when individuals perceive that they are different or are *perceived* as being different from other members of a workgroup. I hypothesized that diversity and its resultant interpersonal conflict in the workplace have detrimental effects on the psychological well-being of nurses. The following section summarizes the key findings about how nurses who are different from others in their workgroup, or who perceive that they are different, may experience conflict and burnout.

The current study findings suggest that some types of diversity in the nursing workforce are associated with interpersonal conflict and burnout. The findings can be divided into two distinct areas: (a) the direct relationships between relational diversity attributes and burnout and (b) the indirect relationship between relational diversity attributes and burnout through the mediated effects of interpersonal conflict. The principal finding was that differences in the nurses' work values and education were most salient in predicting burnout. An additional finding was that diversity in the nurses' work values was associated with *relationship* and *task* conflict with their colleagues, which was associated with burnout.

7.1.1   The Direct Effects of Relational Diversity on Burnout

The first step of the analysis strategy was to estimate the direct relationships between *actual* and *perceived* diversity on burnout. The results indicated that *perceived* diversity explained a greater percentage of the variance in burnout (specifically, depersonalization and a diminished sense of personal accomplishment) compared with the explanatory power of *actual* diversity. The salient attributes that were predictive of burnout were *perceived* differences in both work values and nursing education. Of the variables examined, *perceived* work values diversity and *perceived* educational diversity were the most important explanatory variables of depersonalization (Pratt index = 58% and 21%, respectively; $R^2_{depersonalization}$ = 7%) and were similarly predictive of personal accomplishment (Pratt index = 69% and 35%, respectively; $R^2_{personal\ accomplishment}$ = 7%). Emotional exhaustion was solely (Pratt index = 100%) explained by *perceived* work values diversity; however, the total variance explained was very minimal ($R^2_{emotional\ exhaustion}$ = 3%). With regard to the four hypotheses pertaining to *actual* diversity, only two were accepted, and only partially. The analyses provided very weak support for the hypothesized association between *actual* diversity in ethnicity/race and a diminished sense of personal accomplishment and the hypothesized association between *actual* diversity in work values and depersonalization. Both predictions explained 3% or less of the variance in these aspects of burnout.

7.1.2   The Mediating Influence of Interpersonal Conflict

The second part of the analysis tested the indirect relationships between *actual* and *perceived* diversity on burnout, as mediated by *relationship* and *task* conflict.[27] The findings revealed that when the study nurses perceived their values to differ from their colleagues' work values, *relationship* and *task* conflict emerged, which influenced their degree of burnout. Specifically, I found that conflict predominantly mediated the relationship between *perceived* work values diversity and its sequelae: emotional exhaustion, depersonalization, and a diminished sense of personal accomplishment. More than one half of the effects of *perceived*

---

[27]   Similar patterns of results were found for the two approaches used to measuring *relationship* and *task* conflict: the individuals' reported involvement in conflict with their colleagues and the individuals' perceptions of conflict within the workgroup. An exception to the model findings was the mediation between *perceived* work values and personal accomplishment (see Model 5a and 5b, pages 183 and 184, respectively). The discussion highlights the findings from Model 6a and Model 6b (see pages 193 and 194, respectively).

work values diversity on emotional exhaustion (degree of mediation = 59%) and depersonalization (degree of mediation = 57%) were mediated by *relationship* conflict. To a lesser extent, *relationship* conflict provided some insight into how *perceived* work values diversity also led to a diminished sense of personal accomplishment (degree of mediation = 28%). The total effects of *perceived* work values diversity on emotional exhaustion, depersonalization, and personal accomplishment were found to be partially mediated by individuals' involvement in *task* conflict (degree of mediation = 76%, 68%, and 32%, respectively). A greater percentage of the variance in emotional exhaustion (R^2 increased from 3% to 11%) and depersonalization (R^2 increased from 7% to 20%) was explained by the variables in the mediator model (i.e., conflict explained a significant amount of the variance in the burnout dimensions); however, the explained variance in personal accomplishment increased only slightly (R^2 increased from 7% to 8%). The effects of diversity (i.e., age, education, and work values) explained 11% and 14% of the total variance, respectively, in *relationship* and *task* conflict.[28]

7.2   Strengths and Limitations

This study has both conceptual and methodological strengths. These strengths are introduced in this section and further elaborated upon in the theoretical implications section. Conceptually, the study advances diversity research in several ways. This is one of the few research studies known to have explored the consequences of diversity on nurses at the individual level of analysis. In the field of organizational behaviour, a focus on diversity at the group level of analysis is often used with the intent to improve workgroup functioning and productivity. In nursing, the importance of diversity is uncritically held to be key to ensuring the success of workgroups, an essential component of quality client care. It is not known, however, if such diversity does indeed improve the success of workgroups, or if it has costs for nurses' commitment, job satisfaction, and intentions to stay in their jobs.

Including both *actual* (objective) and *perceived* (subjective) measures of relational diversity was important in capturing both the degree of dissimilarity that existed within the

---

[28]   Subsequent analysis indicated that *perceived* work values diversity was the most important explanatory variable for *relationship* conflict and *task* conflict (Pratt index = 90% and 98%, respectively).

workgroups and the individuals' perceptions of their differences. Although other studies have examined either *actual* or *perceived* diversity, the present study is one of a few that included both approaches to the measurement of diversity. In the current study, small correlations between the *perceptual* and *actual* measures of diversity for the demographic attributes as well as the nurses' work values were found. Thus, the two measurement approaches represent different dimensions of the diversity construct, which may facilitate a greater understanding of the dynamic nature of diversity. Furthermore, the inclusion of both approaches allowed for comparisons which highlight the congruence of *perceived* measures with the theoretical underpinnings of relational diversity. In addition to measuring both *actual* and *perceived* diversity, another unique characteristic of this study was the inclusion of both demographic and nondemographic attributes that seem to be salient to nurses. For example, although other researchers have examined demographic attributes (i.e., age, education, or ethnicity/race), the present study is the first, to my knowledge, to include *actual* as well as *perceptual* diversity pertaining to employees' work values. Rather than focusing on exclusively demographic attributes, nurses' attitudes toward their work were hypothesized to be used as a basis for self-categorization and to determine one's attractions to others.

Researchers in the field of organizational behaviour have examined the relationships between *perceived* relational diversity and conflict (Hobman, Bordia, & Gallois, 2003; Jehn, 1994; Jehn, Northcraft, & Neale, 1999). Many researchers in nursing claim that nurses experience conflict with their colleagues (Almost, 2006; Cox, 2001, 2003; Farrell, 2001; McKenna, Smith, Poole, & Coverdale, 2003); however, little has been determined about the types of conflict that arise or their sources. Unique to this study is the examination of conflict among nurses. This study's inclusion of *relationship* and *task* conflict provides greater understanding of these types of conflict as experienced by people within nursing workgroups. Another strength of the current study was the shift to examine whether burnout arises from individual nurses' interactions with others in their workgroups, rather than the traditional focus on provider–client relationships. Many researchers in the field of nursing use emotional exhaustion as the sole indicator of burnout. The inclusion of all aspects of burnout (i.e., emotional exhaustion, depersonalization, and personal accomplishment) is an additional strength of this study because of the insights gained with regards to the statistical significance of the

204

relationships between some diversity attributes with both depersonalization and personal accomplishment.

In addition to the conceptual strengths of this study, several methodological strengths are exhibited. Perhaps most importantly, the very good response rate obtained (82%) minimized the amount of error that could be attributed to non-response and enhanced my confidence in the overall quality of the data (Mangione, 1998). I obtained less than 5% missing data, which minimized any potential error attributed to item non-response. Another advantage of the current study is the use of structural equation modelling (SEM). Researchers of diversity have commonly used multiple regression analysis in their work, which does not account for measurement error. Accounting for error provides a more accurate representation of the strength of the association and a more accurate estimate of the direct and indirect effects (Zumbo, 2007). Another advantage of SEM is the flexibility in simultaneously testing multiple predictor and mediator variables in a single model (Zumbo, 2007). Moreover, the analyses in this study were conducted using probit regression and polychoric correlations to account for the ordinality and non-normality of the study variables. This may further explain some of the differences between the results found in the current study and those published elsewhere, which are discussed below. For the most part, researchers in the field have treated their measures as continuous, and have assumed that the distributions are normal. In my study, a significant amount of attention was devoted to establishing confidence in the measurement models and the distribution of the data before the specification and testing of the structural models.

The decisions I made strengthened the study, but they also had some inherent limitations. Given the heterogeneity of the sample population, more rigorous investigations of measurement invariance would be useful to determine how well the measurement models generalize across groups of individuals (e.g., types of nurses, ethnicity/race, and practice settings). Having restricted the place of work to acute care hospitals and the setting to a major urban centre may have introduced limitations on the generalizability of the results to other practice settings and communities. For example, in the community practice setting, nurses are usually required to have a baccalaureate degree; therefore, the *actual* and *perceived* differences in education could be limited. As well, there may be less ethnic/racial diversity in the nursing workforce in rural communities since populations in these communities are less diverse.

However, differences in age and work values would be present in the various settings where nurses work. Although the amount of diversity may vary from one context to another, the nature of the relationships tested in the current study should be the same and would be applicable to nurses in other practice settings. The demographics for the sample of this study are representative of the British Columbia nursing population and to some extent the broader Canadian nursing workforce (with respect to gender, job title, and highest education qualification) (Canadian Institute for Health Information, 2008).

Another limitation of the study was the use of self-report measures for all the variables except *actual* relational diversity. The necessary use of self-report measures may have resulted in a bias attributable to social desirability and the mood states and affectivity of the participants. Such biases are one source of measurement error, which may have inflated or deflated the observed relationships among the study variables, depending on the direction of the bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Schwarz, Schwarz, & Rizzuto, 2008). Various strategies were implemented to minimize social desirability. For example, I placed highly sensitive questions in the latter part of the questionnaire, informed participants several times that their responses would be kept confidential and anonymous, and attempted to establish a high level of trust with respondents by providing assurance that the researcher was neutral in allegiance to the particular organization within which the data were collected (Druckman, 2005). Two measures of conflict – individual and intragroup – were included on the survey questionnaire to assist further in the accuracy of participants reporting their conflict behaviours.

Another limitation of this study can be attributed to the unavoidable use of a cross-sectional, correlational design. Cross-sectional designs do not necessarily capture the impact of diversity over time nor permit causal inferences. Ideally, the relative influence of diversity on nurses' burnout could be enriched by collecting prospective longitudinal data. Although the direction of causality cannot be unequivocally established, Hoyle and Smith (1994) commented that directionality may be inferred from cross-sectional data when there is a clearly logical, theoretical, or empirical based cause–effect sequence proposed. In this current study, the direction of the influence for the direct effects of diversity on burnout were hypothesized *a priori* in support of social identity and similarity–attraction theory, as were the mediating effects of conflict. Nonetheless, the testing of equivalent models is necessary to rule out alternative casual

206

flows (e.g., where *perceived* diversity moderates the relationship between conflict and burnout, or vice versa). As suggested by Hershberger (2006), the consideration of alternative models, before or after data collection, is important not only for drawing casual inferences, but also the subsequent identification of implications for theory and practice. Given the design of this study, only correlational inferences, at best, can be made.

7.3 A Discussion of the Current Study Findings in Relation to Other Evidence

The present study is the first, to my knowledge, to explore the relationship between diversity and burnout, in conjunction with the mediating effect of conflict. In this section, the initial discussion of the findings for *actual* diversity in relation to other evidence is followed by a discussion of *perceived* diversity. Given the paucity of published research about the linkages between diversity, burnout, and conflict in nursing populations, I discuss my findings in light of other evidence that is related to the construct of burnout (e.g., psychological well-being) or is a consequence of burnout (e.g., organizational commitment, job satisfaction, intentions to leave the job, and work productivity and effectiveness) (Cordes & Dougherty, 1993; Maslach, Schaufeli, & Leiter, 2001). When no research was available in nursing populations, equivalent research conducted in other population samples was used to make comparisons. It is worth presenting a note of caution about the comparisons with non-nursing samples given some of the methodological limitations of this body of research (e.g., different conceptualization and measurement of the diversity attributes, sampling from various work sectors, and identification of various referent groups, which may have differed in size, level of interaction, or permanence).

7.3.1 The Direct Effects of *Actual* Relational Diversity on Burnout

Although the current study found two statistically significant relationships among the *actual* diversity hypotheses (specifically, ethnicity/race diversity on personal accomplishment and work values diversity on depersonalization), a very small amount of the variance in the dimensions of burnout was explained. Thus, there was limited support for the association between *actual* diversity and burnout. The paucity of published research available for comparison, particularly in the field of nursing, renders it difficult to understand the connection, or lack thereof, between *actual* relational diversity and burnout. My literature review yielded one other study that examined this association. Using demographic attributes to investigate the

impact of *actual* diversity on burnout, Wesolowski and Mossholder (1997) determined that relational differences in age and education *between employees and their supervisors* were not predictive of burnout, but that ethnicity/race diversity did result in employee burnout. A comprehensive literature review yielded no published studies that have examined the influence of *actual* diversity using nondemographic attributes, such as work values, on burnout. Available for comparison are studies that examined relational diversity of demographic attributes such as age, education, and ethnicity/race on other outcomes interrelated with burnout (e.g., organizational commitment, job satisfaction, and job intentions) (Clark, 2001; Cunningham & Sagas, 2004; Liao, Chuang, & Joshi, 2008; Liao, Joshi, & Chuang, 2004; Riordan & Holliday Wayne, 2008; Tsui, Egan, & O'Reilly III, 1992). Overall, mixed findings have been reported as the predictive ability of a particular diversity attribute depends on the outcome variable of interest. For example, in a study of acute care nurses, Gates (2005) reported that *actual* educational diversity was negatively associated with nurses' intentions to stay at their jobs and *actual* ethnic/racial diversity predicted nurses' positive job satisfaction. He concluded, however, that *actual* age diversity was *not* predictive of nurses' satisfaction with their jobs or intention to stay in them.

Largely unprecedented in the literature is the concurrent testing of *actual* and *perceived* diversity, particularly in nursing populations. In my review of the literature, only two studies were found that used both an *actual* and *perceptual* approach to the study of relational diversity in the public sector (Clark, 2001; Riordan & Holliday Wayne, 2008). Supporting my findings, the available empirical evidence suggests that *perceptions* of diversity are significant in predicting individuals' attitudes and behaviour beyond *actual* diversity. A question unanswered by the results of the current study is why *actual* relational diversity does not account for the variance in burnout. Some may argue that the lack of predictability of *actual* diversity may be that the attributes I selected are not well-suited to predict burnout (Garcia-Prieto, Bellard, & Schneider, 2003). However, I put forth the argument that limited predictability of *actual* diversity may be related to the nature of diversity and its complexity. Diversity is a socially constructed phenomenon. Based on the tenets of social identity theory and similarity–attraction theory, the meaning of identities and our attraction for others can change across contexts and over time (Cox, 1995). Through interaction processes that are relational and comparative, individuals assign their own psychological meaning to differences. Accordingly, it is individuals'

perceptions of diversity and not the *actual* diversity that is predictive of their attitudes and behaviour (Riordan, 2000; Riordan & Holliday Wayne, 2008). Diversity research from a relational perspective has been largely shaped by those researching demographic diversity, which focuses on the effects of the degree of heterogeneity of select demographics on group and organizational outcomes (Tsui & Gutek, 1999). Although the use of *actual* (objective) measures may be important in understanding diversity at group or organizational levels, this approach has not produced consistent findings at the individual level (Riordan & Holliday Wayne, 2008). It is not necessarily about the *actual* individual differences that divide workgroups but rather individuals' judgments about members of the workgroup that does. Stated another way, individuals' perceptions of others in the workgroup shape their reality and this reality, in turn, drives the conscious attitudes and behaviour of people. The available theoretical and empirical evidence, albeit limited, is congruent with my finding that *actual* diversity does not predict burnout. Rather, the use of *perceived* measures is more likely to yield significant and consistent results for predicting individuals' attitudes and behaviour. This aspect of my investigation is discussed next.

7.3.2   The Direct Effects of *Perceived* Relational Diversity on Burnout

This section is organized according to the *perceived* diversity attributes that were predictive of burnout, followed by a discussion of those that were not. The salient attributes that were predictive of burnout were *perceived* differences in nursing education and in work values.

7.3.2.1   Education

The study nurses who perceived that they are different from their colleagues with respect to their education reported more negative, callous, or distant attitudes toward other people and had a diminished sense of personal accomplishment, both of which are indicative of burnout. Absent from the nursing literature is research about the influence of individuals' level of education relative to others within the workgroup on burnout. In the field of organizational behaviour, only two published papers were identified that examined the influence of educational diversity in predicting attitudinal outcomes. Both concluded that *perceived* educational diversity was not predictive of individuals' involvement in or identification with their workgroup, the amount of open communication present, their organizational commitment, or their turnover intentions (Hobman et al., 2003; Riordan & Holliday Wayne, 2008). A possible explanation of

Hobman et al.'s finding is their combining of multiple demographic attributes, which included educational background, to represent *perceived* informational diversity. By combining attributes into a scale score the contributions of each are unknown (Riordan & Holliday Wayne, 2008). An alternative explanation of my findings is that within the nursing context, education holds relatively more importance than do other attributes. The inclusion of licensed practical nurses in this study may reflect important differences in education as well as professional designation, knowledge, skill, and cognitive ability. Although the effects of *perceived* educational diversity may be greater for those with less education, through subsequent analysis I determined that perceptions of educational diversity were independent of the level of education obtained. Nonetheless, the integration of licensed practical nurses into nursing teams challenges well-established, dominant social identities in the workplace. At the same time, there is long-standing tension among some registered nurses with regard to the type of nursing education required for entry-level practice (e.g., hospital-based diploma program versus baccalaureate degree preparation). Individuals that vary from the "in-group" with respect to their educational background may be viewed unfavourably and excluded by some other team members, or they may be sensitive to their perceived differences and have feelings of insecurity or superiority. Consequently, these individuals may be more likely to withdraw from their colleagues, develop feelings of inadequacy about their personal ability to succeed, and internalize the external views of others (perceived or real) that successful achievement is unlikely (learned helplessness) (Densten, 2001). Further research is needed to better elucidate the potential differential effects of *perceived* educational diversity on burnout.

7.3.2.2   Work Values

Perceived diversity in work values was found to be positively associated with emotional exhaustion and depersonalization, and was negatively associated with personal accomplishment. Only one other study, albeit of a different population, examined the link between work values diversity and burnout. In a study of 135 university faculty members, Siegall and McDonald (2004) found a strong association between burnout and whether the faculty members believed that their values and goals were similar to those of the organization. Specifically, *perceived* values *similarity* was positively correlated with personal accomplishment and negatively correlated with emotional exhaustion and depersonalization. Jointly, these two

studies tentatively suggest that individuals whose work values differ from those of others may have a greater tendency to experience burnout.

Several other researchers have consistently identified that *perceived* work values diversity is a significant predictor of attitudinal outcomes that are cited consequences of burnout (Clark, 2001; Cunningham & Sagas, 2004; Gates, 2005; Gonzalez, 2001; Hobman et al., 2003; Hobman, Bordia, & Gallois, 2004; Jehn, 1994; Jehn et al., 1999; Liao et al., 2008; Williams, Parker, & Turner, 2007). For example, in his study of acute care nurses, Gates (2005) found that *perceived* values diversity was negatively associated with both job satisfaction and the intention to stay in both older nurses (over 48 years of age) and younger nurses (under 34 years of age). Conversely, *perceived* differences in values were not predictive of nurses' involvement in their workgroup, despite a statistically significant bivariate correlation (Hobman et al., 2004). The difference between the findings in the Hobman et al. (2004) study and my study may be attributed to methodological and sampling issues, such as workforce restructuring prior to commencement of the study, data collection at two points in time, and the measures used to assess *perceived* work values diversity. In non-nursing samples, there is support for the association between *perceived* differences in work values and employees' negative attitudes (i.e., job dissatisfaction, intentions to leave, and a lack of commitment to the organization and group) (Clark, 2001; Cunningham & Sagas, 2004; Gonzalez, 2001; Jehn, 1994; Jehn et al., 1999). Although not studying burnout, *per se*, Liao et al. (2008) reported that greater *perceived* deep-level diversity (which includes differences attributed to work values) was predictive of individuals' work withdrawal behaviour and fewer helping behaviours. At the same time, when employees have work values that are perceived to differ from those of their colleagues they also are less likely to be involved in their workgroup (Hobman et al., 2003), unable to see the world from another's view (Williams et al., 2007), and dissatisfied with their colleagues (Clark, 2001).

What I can conclude from the available empirical evidence is that *perceived* differences in attributes that are not readily apparent, such as work values, drive people's conscious attitudes and behaviour. These findings are consistent with the tenets of social identity theory and similarity–attraction theory. The more individuals perceive themselves to be different in terms of their work values, the less favourable the view they hold toward their colleagues, and the more likely they will have strained interactions with others. These outcomes portray a less

than desirable work environment reflective of a poor sense of community. Individuals working in an environment such as this are more likely to feel emotionally depleted. When individuals work-related attitudes and beliefs are dissimilar from their colleagues, self-verification theory suggests that individuals may question the validity of their own views, which can lead them to develop indifferent attitudes toward and withdraw from their colleagues (Greer & Jehn, 2007). These negative feelings may in turn lead to poor self-evaluations regarding both job competence and achievement in one's work.

7.3.2.3   Age

In relation to the predictor variable, *perceived* age diversity, I observed an interesting finding. Although small in magnitude, the significant direct effect of *perceived* diversity in age on depersonalization was counter to my hypothesis. Nurses who perceived they were different in age from others within the workgroup experienced *less* depersonalization. One interpretation of the findings is that individuals' perception of age diversity may be different for younger and older nurses. Younger individuals may differentiate less among people than do older persons, at least with respect to age. Also, those who are older may be more sensitive to age and thus more aware of differences among workgroup members. Examining this further, I determined that in my study those who perceived themselves to be different with respect to their age were the oldest nurses (50 years and older). Given the paucity of research exploring the link between *perceived* age diversity and burnout, the small magnitude of the effect, and the finding that *perceived* age diversity was the least important variable in explaining depersonalization (see Table 6.16, page 177) further investigation is warranted to achieve greater clarity about the influence, if any, of *perceived* age diversity in nursing workgroups.

7.3.2.4   Ethnicity/Race

The hypothesized relationships between *perceived* ethnic/racial diversity and the three aspects of burnout were not supported. One reason why ethnicity/race was not found to be predictive of burnout may be that the personal identities that individuals assign to themselves with respect to their ethnicity/race may be different from the social identifies that members of the workgroup assign to particular individuals. Nonetheless, we can tentatively conclude that *perceived* differences in ethnicity/race do not contribute to burnout experienced by nurses. Absent from the literature is the exploration of *perceived* ethnic/racial diversity and burnout in

any discipline. In consideration of other individual outcomes (e.g., job satisfaction, organizational commitment, job turnover intentions, workgroup involvement, and colleague satisfaction), of the four other research teams that studied this attribute in non-nursing samples all concluded that *perceived* ethnic/racial diversity is *not* a significant predictor (Clark, 2001; Cunningham & Sagas, 2004; Hobman et al., 2003; Kirchmeyer, 1995).

7.3.2.5 Theoretical Explanations of the Salience of Education and Work Values in Nursing

Taken together, my results indicate that an outcome of *perceived* diversity in education and work values, within nursing workgroups, is burnout. A question therefore remains as to why differences in education and work values may be salient to nursing workgroups. Based on the similarity–attraction theory, a possible explanation for the lack of significance of age and ethnicity/race diversity is that the attraction between nurses and their colleagues is based on information about less-observable attributes (e.g., values and educational backgrounds) rather than attributes that may be more readily apparent. Unobservable, underlying attributes become apparent to individuals through frequent interaction in the context of their workgroup and by observing verbal and nonverbal behaviour. Information gained about individuals is used to revise one's initial social categorization of others, which may initially have been based primarily on attributes that are outwardly noticeable (Liao et al., 2008).

An alternative explanation about the importance of work values and education is related to which social identities are more or less important to individuals. The salience of an attribute "may be influenced by the relevance, importance, and significance that is attached to that social identity in a particular context by the person and by others" (Garcia-Prieto et al., 2003, p. 422). In other words, the salience assigned to an attribute depends on the psychological meaning that individuals assign to it. Salience of a social identity may arise because of various motivational and contextual conditions, such as (a) the existence of a disproportionate number of individuals from a given identity group in comparison with other social identity groups, (b) perceived differences in power and status between the various social identity groups present within the workgroup, and (c) the reactions and expectations communicated about one of the social identity groups (Garcia-Prieto et al., 2003). For example, presently there is a disproportionate number of nurses educated as registered nurses in comparison with those educated as licensed practical nurses, as well as diploma-prepared registered nurses relative to

213

baccalaureate-prepared registered nurses. By virtue of having a disproportionate number of individuals representing these specific social identities, the educational attribute becomes salient. At the same time, those identifying as a baccalaureate-prepared registered nurse may perceive themselves to be of higher status than nurses with diploma preparation.

With regard to the work values of nurses, several studies have been published about the challenges associated with generational differences in the workplace and the work attitudes of younger nurses (e.g., Apostolidis & Polifroni, 2006; Blythe et al., 2008; Cordeniz, 2002; Duchscher & Cowin, 2004; Lavoie-Tremblay et al., 2008; Santos & Cox, 2002; Widger et al., 2007). Many conferences and educational sessions held in various workplaces have focused on nurses' work values, which are assumed to vary with each generational cohort (i.e., Baby Boomers, Generation X, and Generation Y). Placing emphasis on the categorization of nurses into generational cohorts generates stereotypes (Garcia-Prieto et al., 2003). The stereotypes created with regard to different generational cohorts of nurses having different work values are communicated (verbally, nonverbally, explicitly, or implicitly), and these shape expectations of members of the workgroup. In the context of nursing workgroups, the salience of a given social identity may be influenced by the existence of a disproportionate number of nurses whose work values are representative of the Baby Boomer generation and the communicated expectations of nurses' work values. This salience may in turn be reinforced through competition within the workgroup and through ongoing interaction between members.

7.3.3 The Mediating Influence of Interpersonal Conflict

The most important conclusion to be drawn from the discussion of my findings in relation to other evidence is that *relationship* and *task* conflict are important mechanisms by which *perceived* work values diversity leads to burnout. To understand this conclusion, the mediating effects of interpersonal conflict are first discussed in respect to the effects of diversity on conflict, followed by the effects of conflict on burnout. Next, I discuss the mediating model in its entirety.

7.3.3.1 The Relationship between Relational Diversity and Interpersonal Conflict

A theoretical model guided my hypotheses that relational diversity in age, education, ethnicity/race, and work values influences individuals' involvement in conflict within their workgroups. In testing the indirect effects of diversity on conflict, greater *perceived* work values

214

diversity was predictive of both *relationship* and *task* conflict. In the relational diversity literature, the mediating effect of conflict is relatively new. Consistent with the findings of the current study, two other research teams investigated the diversity–conflict linkage, in organizational behaviour, and demonstrated that *perceived* diversity in work values is predictive of greater amounts of both *relationship* and *task* conflict (Hobman et al., 2003; Jehn et al., 1999). At the same time, when individual values are congruent with the workgroup's values, less *relationship* and *task* conflict are experienced within the workgroup (Jehn, 1994; Jehn, Chadwick, & Thatcher, 1997). With regard to the effects of *perceived* differences in age, education, and ethnicity/race attributes on conflict, only one other study was identified in the published literature, which reported similar non-significant findings (Hobman et al., 2003).

7.3.3.2 The Relationship between Interpersonal Conflict and Burnout

The second component of my examination of the effects of diversity on burnout via conflict was consideration of the effects of conflict on the three aspects of burnout. A positive relationship between interpersonal conflict and emotional exhaustion was originally hypothesized by Schaufeli et al. (1993) and supported by other researchers (Giebels & Janssen, 2005; Mulki, Jaramillo, & Locander, 2008; Stordeur, D'Hoore, & Vandenberghe, 2001). A major limitation of the available evidence is that the measurement of conflict applied typically captures the degree to which disagreements have occurred (Mulki et al., 2008; Payne, 2001; Stordeur et al., 2001), rather than the amount of each specific type of conflict. Nonetheless, these studies have reported that greater interpersonal conflict is predictive of greater emotional exhaustion among healthcare employees. One study examined the relationship between *relationship* and *task* conflict on emotional exhaustion: Giebels and Janssen (2005) reported that *relationship* conflict predicted emotional exhaustion; however, *task* conflict did not. The most apparent explanation for the differences in their findings from mine may be related to methodological differences in data analysis, the operationalization of *task* conflict and burnout, and the population under study. For instance, my measure of *task* conflict varied slightly and included an item about the anger experienced with work-related disagreements. Giebels and Janssen (2005) did not examine the impact of conflict on depersonalization and personal accomplishment. One other study, however, examined the relationships between conflict and the three aspects of burnout. In a sample of hospice nurses, Payne (2001) found that nurses' conflict with other nurses was predictive of

emotional exhaustion and depersonalization but not a sense of diminished personal accomplishment.

7.3.3.3 The Mediation Model of Diversity on Burnout through Conflict

The proceeding discussion highlights available theoretical and empirical evidence that supports the effects of diversity on burnout through conflict. To my knowledge, this is the first study to explore this mediation model. One other study was located that examined conflict as a mediator of the effects of diversity on individual outcomes. Jehn et al. (1999) considered the mediating effects of conflict on diversity and worker morale (i.e., satisfaction, intent to remain, and work commitment) and reported that the effect of *perceived* work values diversity on worker morale was mediated by both *relationship* and *process* conflict. The mediating role of *task* conflict was not examined. Collectively, the evidence tentatively suggests that the influence of diversity in work values on individuals' outcomes occurs partially as a result of the conflict that can occur within workgroups. A reason for this finding may be that work values reflect a constellation of attitudes and beliefs pertaining to work-related behaviour and the work environment in general (Miller, Woehr, & Hudspeth, 2002; Smola & Sutton, 2002). These work-related attitudes and beliefs are core to individuals' social identities and shape not only how they perceive and react to others, how they appraise and respond to issues and events, but also the expectations group members have about one another's behaviour (Garcia-Prieto et al., 2003). Work values are thus more likely to influence whether individuals have disagreements generated by differences in personal opinions or by non-work related preferences, as well as disagreements about the content and goals of the work. What is clear from the findings of the current study is that *relationship* and *task* conflict results from differences in work values, not age diversity, and that this conflict is an important mechanism by which *perceived* work values diversity leads to burnout. What remains unknown is whether the work values measured in this study are representative of the various generational or age cohorts.

The expected mediating influence of conflict on the relationship between *perceived* educational diversity and burnout did not emerge in the current study. This result was somewhat surprising given the potential theoretical likelihood of an effect. In addition to the obvious reason that *perceived* work values may confound the relationship between *perceived* educational diversity and conflict, another explanation for these findings may be that some other process

216

occurs. One such process may be differences in educational background leading to other forms of verbal aggression (e.g., anger, judging and criticizing, condescension, and blocking and diverting (Rowe & Sherlock, 2005)) that diminish nurses' sense of belonging within their workgroups. Thus, differences in education do not lead to conflict, but rather to other types of verbal aggression, which in turn may influence how individuals are accepted, valued, and respected by others within the workgroup. Consequently, in the absence of a respectful workplace, individuals are more likely to withdraw from the workgroup and to evaluate their job competence and ability to succeed in a negative manner. Other aspects of the social climate, such as individuals' sense of belonging, may also underlie the process by which *perceived* diversity in education results in burnout. Further research is needed to better elucidate the effects of *perceived* educational diversity and how it leads to nurses both mentally distancing themselves from others and negatively evaluating themselves.

7.4 Theoretical Implications

The findings of the current study inform the body of literature pertaining to diversity, interpersonal conflict, and burnout. Of specific interest are the implications for nursing science. Each study construct will be discussed in turn.

7.4.1 Relational Diversity

The findings of the current study contribute to our understanding of relational diversity at the individual level by specifically including both *actual* and *perceptual* operationalizations. Thus far, *actual* diversity, using the Euclidean distance score, has been the major focus of attention in relational diversity research in the field of organizational behaviour. However, the *actual* approach has been criticized on both conceptual and methodological grounds (Garcia-Prieto et al., 2003; Riordan & Holliday Wayne, 2008). Some of the criticisms are that the *actual* approach does not account for individuals' subjective experience of being different or for the potential incongruence between individuals' perceptions and "objective" reality. It could be argued that studies from the *actual* diversity perspective have overemphasized objective reality, providing us with limited information about the salience of certain attributes from the individual perspective. Most importantly, the current study's findings emphasize the importance of attending to people's perceptions of diversity, rather than relying solely on *actual* indicators of diversity. At both the theoretical and empirical level, I have demonstrated that

individuals' perceptions of diversity within their workgroups differ from objective reality, and actual differences did not result in perceptions of dissimilarity. The relatively low correlations between *actual* and *perceived* diversity attributes suggest that these perspectives of relational diversity should be considered as distinct phenomena with their own antecedents and consequences. My results support more recent perspectives that *perceived* relational diversity should be investigated in relation to individual attitudinal and behavioural outcomes (Garcia-Prieto et al., 2003; Liao et al., 2008; Riordan & Holliday Wayne, 2008). It is the perceptions of diversity that shape the realities of individuals within their workgroup as opposed to the *actual* diversity that exists.

Another area of the literature that is informed by the findings of this study is the simultaneous examination of multiple attributes of interest. These results challenge earlier studies that used either an *actual* or *perceptual* approach, or a combination of the approaches, to conceptualize relational diversity (e.g., Jehn et al., 1999). In most cases, each attribute was studied from either perspective so that comparisons between *actual* and *perceived* diversity were not possible. I included not only attributes that may be easily observable (e.g., age), but also attributes that may not be readily apparent (e.g., education) or are not merely demographic (e.g., work values). My findings suggest that certain attributes may be more or less salient to an individual based on that individual's need to sustain a high level of self-esteem and a positive self-identity. Moreover, attributes that are not readily apparent, such as work values, drive the conscious attitudes and behaviour of people. These findings are consistent with the tenets of social identity theory and similarity–attraction theory in that the meaningfulness and importance of attributes are socially constructed as individuals interact with their colleagues over time and in different contexts. Through self-categorization and attraction processes, nurses whose underlying attributes differ from their colleagues' may be named and marked as such. In the current study, the significance of the education and work values attributes suggests that diversity pertaining to demographic attributes, such as ethnicity/race, is less of a concern to nursing workgroups. Thus, the current study findings bring new insight to understanding the role of relational diversity in the nursing workforce especially with respect to the attributes that are most meaningful. Further research could clarify the interactions between, or mediation of, multiple social identities (e.g., work values and age).

The results of this study also contribute to the diversity literature by bringing new insights into the consequences of diversity on individuals. Previous studies have mostly considered individuals' attitudes toward their jobs (e.g., job satisfaction and commitment), their level of involvement, or job turnover. This study, however, considered the consequences of diversity to the psychological well-being of nurses, which are critical to the quality of client care provided. As the results of this study have suggested, burnout could be considered a response to *perceived* diversity in work values and education, particularly when employees experience conflict as a consequence of work value differences.

7.4.2 Burnout

The findings of the current study also have implications for the literature about employees' burnout. The social aspect of the work environment has not received sufficient attention; rather, attention has been placed on the provider–client relationship. By focusing my attention on nurse–nurse relationships, within workgroups, I determined that the social context and the nature of the disagreements that nurses have with their colleagues are an important part of the work environment and influence nurses' psychological well-being. Individuals who perceive that they are different in terms of their work values have a less favourable view of their colleagues and are more likely to have strained interactions with others. Strained relationships arising from such *perceived* differences make work unpleasant, minimize individuals' sense of community, and subsequently increase the incidence of burnout. This study also advances research about burnout by having moved beyond the examination of simple demographics (e.g., age or generational cohorts) to explore the influence of individuals' differences relative to others in their workgroups.

The findings of this study bring new insights to our understanding of the dimensions of burnout. Typically, researchers who examine burnout in the nursing population operationalize it as emotional exhaustion, despite each aspect of burnout representing a distinct dimension with its own antecedents and consequences. By empirically testing all identified aspects of burnout, this study has shown that depersonalization and personal accomplishment are important dimensions to be studied in nurses. In fact, in many instances in this study, greater percentages of explained variance were achieved for depersonalization and personal accomplishment than for emotional exhaustion. As the results of the current study suggest, the relationships between the

219

three aspects of burnout and the *perceived* diversity attributes reflect concurrent processes within the person. These results provide continued support for the multidimensional view of burnout.

7.4.3   Interpersonal Conflict

In keeping with the theoretical model that provides a framework for understanding the relationships among diversity, conflict, and workgroup outcomes and performance (Garcia-Prieto et al., 2003; Pelled, 1996a), my findings illuminate the *individual* experiences of the diversity–conflict linkage. Both conceptually and empirically, this study has demonstrated that *relationship* and *task* conflict are consequences of relational diversity, particularly in work values. In assessing interpersonal conflict, I examined both *intragroup* conflict (amount of conflict within the group) and *individual* conflict (amount of conflict that an individual is involved in). Initially, there was some concern regarding the bias associated with self-evaluations of individuals' involvement in conflict; the correlations between the *intragroup* and *individual* conflict constructs were moderate (range = 0.64 to 0.75). Although the means were higher and variability greater for the *intragroup* conflict scores in comparison with the *individual* conflict scores, the modelling portion of the analyses yielded comparable findings. An exception to this finding was that *intragroup* conflict did not mediate the relationship between *perceived* work values and personal accomplishment, whereas *individual* conflict was statistically significant. Because social identities can influence individuals' cognitive appraisals of conflict experiences, it may be more theoretically plausible to examine individuals' involvement in conflict. It may be the case that individuals who are personally involved in disagreements with their colleagues will have different appraisals of the amount of individual conflict present and, the amount of conflict present within the group (Garcia-Prieto et al., 2003). For example, individuals may not identify that they are personally involved in conflict and may still identify that conflict exists within the workgroup. Conversely, individuals may identify group solidarity in the absence of conflict within the workgroup, while at the same time identifying being personally involved in conflict with one or more colleagues. Greater amounts of conflict between individuals or within the group may be emotionally draining and cause individuals to withdraw; however, evaluating oneself negatively may be influenced to a greater degree by being personally involved in conflict, as was the case with the current study findings. The current study provides empirical support for the validity of measuring conflict by evaluating individuals' perceptions of their involvement in conflict within the workgroup.

This study also contributes to research about the mediators of the effects of diversity on individual outcomes, specifically interpersonal conflict. Very few researchers have tested theoretical models that propose a mediating influence of conflict. My findings establish a foundation for future research about conflict as an intervening process between diversity and individual outcomes, such as burnout. Prior research has sought to identify the existence of horizontal violence, bullying, or conflict experienced by nurses; however, minimal information has been gained about the nature of the conflict. The current study contributes to the nursing literature about sources of conflict as well as types of conflict experienced by nurses. I have learned, from this study, that disagreements among nurses are person-related as well as work-related. Another area informed by the findings of this study is the study of the effects of conflict on the health and well-being of employees, which is in its infancy (De Dreu & Beersma, 2005). As the results of this study suggest, the nature of conflict has a detrimental effect on the individuals involved. This study thus provides a foundation to further understand conflict theory by further examining the importance of conflict in the workplace on individual well-being (De Dreu, van Dierendonck, & Maria, 2004; Dijkstra, van Dierendonck, & Evers, 2005).

7.5   Practical Implications

The effect of perceived diversity on burnout is only one part of the larger story about the consequences of diversity at the individual level. The findings of this study have shown that *perceived* educational diversity and work values diversity play significant roles as antecedents to burnout, at least in nursing workgroups. Moreover, the mechanism by which this happens with respect to work values is through the presence of interpersonal conflict. On the practical level, the obtained results contribute by indicating that (a) all diversity attributes are not equivalent in terms of their outcomes, (b) perceptions of diversity shape individuals' realities, (c) individual differences in work values and level of education should not be overlooked in terms of their influence on nurses' psychological well-being, and (d) minimizing the interpersonal conflict that arises from individual differences within the workgroup might reduce some of the burnout experienced by nurses. The implications of these findings can occur at the micro (individual), meso (unit), and macro (organization and regional) levels. Thus, the implications of the study thereby relate to nurses at the point-of-care as well as individuals in various leadership positions. My discussion begins with the implications on the level "in between" – the meso level given its

221

interplay between the macro and micro level. I continue with implications for the macro level and conclude with a discussion of the implications at the micro level.

At the meso level, front-line leaders and managers are the primary conduit for policy implementation and shaping the work environment at the point-of-care. Leaders need to be adept at managing increasing perceptions of diversity that shape the realities of workgroups and facilitating nurses' openness to differences associated with their work values. This can be achieved by creating a climate of support for and acceptance of diversity. Leaders can influence how differences are perceived by individuals comprising a workgroup. Irrespective of the *actual* diversity within the workgroup, leaders need to attend to individuals' *perceptions* of their differences, particularly in their work values and education. In addition to establishing a climate that embraces diversity, leaders require important skills to manage, intervene, and shape the formation of salient social identities in a workgroup, the categorization of people into in-groups and out-groups, and the creation of binaries (us/them) (DiTomaso & Hooijberg, 1996). Attention to the latent social identities in a workgroup, such as those based on work values and education, may provide additional insight into the potential stereotyping of and role expectations placed upon individuals (Garcia-Prieto et al., 2003). As agents of influence, effective leaders could work in partnership with members of the workgroup to highlight a common work goal, such as quality client care, while at the same time acknowledging that each individual within the workgroup may have a unique approach to achieving the goal (Hobman et al., 2003). In this way, *perceived* differences in the work values of nurses may co-exist; however, conflict between nurses may be minimized by focusing on a shared common goal. The creation of respectful partnerships among nurses (e.g., partnership/practice councils and shared work teams) might provide opportunities for engagement and a foundation upon which differences in values can be revealed, while at the same time supporting the achievement of a common goal. The development of respectful partnerships among members of a workgroup shifts the emphasis toward the similarities between individuals, resulting in less emotional strain, greater employee involvement, and more positive self-evaluations. By engaging in conversation about the difficult issues, such as reactions to categorization (e.g., anger, disdain, and aggression) and possible misunderstandings about diversity, managers can use their leadership skills to shape and transform the relationships of people in various categories (DiTomaso & Hooijberg, 1996).

Not only are leaders influential in creating climates that embrace diversity, they also play pivotal roles in determining human resource requirements. The findings of this study demonstrated that *perceived* diversity in work values resulted in a higher degree of burnout, which may result in job dissatisfaction, absenteeism, limited organizational commitment, or job turnover. Given the current shortage of nurses, it would be advantageous for leaders to minimize the impact of *perceived* difference in work values within their workgroups. In recruiting and selecting employees, nursing managers should articulate their views about the climate and values related to diversity, or the perception of such, within their specific units.

These strategies, engaged at the meso level, are equally relevant at the macro level and require support. From an organizational perspective, the messages of respect, caring, and trust should create a climate that embraces diversity and provide the foundation upon which leaders can create and change structures. Senior leaders at the organizational and regional levels have a responsibility to set the conditions through which respect and trust will be enacted in settings comprised of diverse individuals (DiTomaso & Hooijberg, 1996). Organizations need to establish norms about respecting individual differences, which are shaped by *perceptions* of diversity, while at the same time emphasizing the similarities. For example, an assumption behind diversity training offered to employees is to acknowledge that although people may have *actual* differences, both demographically and in their underlying attitudes (e.g., work values), greater emphasis should be placed on recognizing the degree to which individuals *perceive* themselves to be *similar* to other members of their workgroup (Williams et al., 2007) and the nature of these perceptions in shaping the realities of individuals comprising workgroups.

The findings support a recommendation for organizations to adopt a comprehensive view of diversity, such that diversity is not restricted to culture or ethnicity/race considerations. Many organizations focus narrowly on *actual* cultural diversity without consideration of other important attributes, including differences in work values and education, which are constructed by individuals' *perceptions*. Moreover, diversity in healthcare workplaces is traditionally viewed as something to be "managed" thereby emphasizing the awareness of and sensitivity to *actual* differences (DiTomaso & Hooijberg, 1996). Organizations could move beyond their traditional ways of managing diversity by embedding broader notions of diversity into their strategic imperatives, employee engagement, organizational structures (e.g., diversity offices), and core

documents pertaining to quality practice environments (DiTomaso & Hooijberg, 1996). Although there must be an environment that is supportive and respectful of diversity, "it is at the level of social interaction that leaders are likely to have the most indirect effect" (DiTomaso & Hooijberg, 1996, p. 167). It is the individuals themselves – whether nurses at the point-of-care or executive leaders – who must enact a commitment to valuing diversity, whether real or *perceived* (DiTomaso & Hooijberg, 1996). The effectiveness of the means by which healthcare leaders attend to *perceptions* of diversity is an area requiring further research.

In addition to supporting leadership practices at the meso and macro levels, the findings from this study are important at the individual or micro level. Indeed, some nurses may recognize that *actual* differences exist in the workplace yet, to date, the direct and indirect effects of *perceived* difference go unnoticed by many nurses. Concretely, these findings imply that burnout among nurses might be reduced by minimizing their involvement in conflict, by enacting a commitment to diversity, and by changing individuals' interpretations of their differences (DiTomaso & Hooijberg, 1996). As previously mentioned, promoting awareness of and sensitivity to *perceptions* of diversity is one mechanism by which individuals can modify their interpretation of diversity. In light of the theoretical underpinnings of this study, another possibility for changing nurses' interpretations of diversity and shifting their responses to workplace diversity is through the use of a relational process of inquiry. Relational inquiry requires individuals to look introspectively at themselves, to consider the social context of their workgroups, and to reflect upon the ways individuals think and talk about diversity (Hartrick Doane & Varcoe, 2006). An element of relational inquiry is for individuals to observe the social identities that shape the culture of the workplace, the categorization of members in their workgroups, and the expectations placed on others. By using relational inquiry, individuals within the workgroup might move away from a position of blame, defensiveness, and exclusivity to a position of respect, understanding, and connection. Individuals may come to see diversity as an opportunity, rather than as a problem (Hartrick Doane & Varcoe, 2006). A potential outcome of individuals adopting a relational process of inquiry is the use of new ways of interacting with others *perceived* as different and effective strategies to cope with the consequences of diversity (e.g., conflict). Such strategies are crucial to addressing work stressors associated with the *perceptions* of diversity shaping current realities, which is an important step in the management of the healthcare workplace, the development of a healthy workforce, and the retention of nurses.

224

7.6   Future Research Directions

Although the results of the current research provide some preliminary theoretical and empirical evidence for the diversity–conflict–burnout links, I also hope that it serves as a catalyst for future research about the salience of diversity attributes in nursing workgroups and their subsequent effects on individuals. Of the four attributes studied, work values and education were found to be significant in leading to a higher degree of burnout among nurses. Further research is necessary to understand better the salience of these attributes as well as to consider other latent attributes or social identities that form the basis for categorization and attraction processes in nursing workgroups. If *perceived* diversity is not based on *actual* diversity, then what accounts for these perceptions? Is there a threshold for each individual that triggers perceptions of dissimilarity for a given attribute (e.g., work values)? Does *perceived* work values diversity moderate the relationship between *actual* diversity and burnout? These are questions that could be answered. I found that not all diversity attributes are equivalent in their outcomes. With respect to burnout, the attributes of salience were those that are not easily observable (i.e., work values and education). Accordingly, future researchers should examine a range of attributes with respect to other individual outcomes, such as individuals' satisfaction with their colleagues, level of empowerment, or intentions to leave their job.

Another potential avenue for future research would be a more systematic examination of the different dimensions of work values as potential predictors of various aspects of burnout. In this study, *actual* work values diversity was conceptualized as a unitary construct. Other researchers have highlighted the importance of different dimensions of people's work ethic as having differential relationships with other constructs (Miller et al., 2002). In examining nurses' *actual* work values diversity relative to others within the group, alternative statistical analysis methods could be used, for example, others have suggested social network analysis (Liao et al., 2008; Riordan & Holliday Wayne, 2008). In considering the meaning of *perceived* differences in work values, future research is necessary to facilitate the use of multiple-item work values scales that reflect its multidimensionality.

Further investigation is warranted to achieve greater clarity about the influence of *perceived* age diversity in nursing workgroups, and to understand the moderating influences of satisfaction with one's colleagues and *perceived* differences in work values. In accordance with

intragroup relations, *perceived* age dissimilarity may only be significant when *perceived* work values diversity is low (Williams et al., 2007) or when older individuals are satisfied with their colleagues (Avery, McKay, & Wilson, 2007). Other interesting questions for future research are: Does *perceived* work values diversity moderate the relationship between *perceived* age diversity and burnout? Are there asymmetrical effects of age diversity on burnout for younger and older employees? Do similarities in age have more of an effect on individuals' satisfaction with and competition among others in their workgroup, rather than on their own work-related attitudes (e.g., job satisfaction, organizational commitment, and intentions to leave)?

Further research is necessary to explore the potential mediating or moderating processes of the educational diversity–burnout relationship. In particular, an interesting future research direction would be the examination of the influence of individuals' sense of belonging; that is, being accepted, recognized, valued, and appreciated by others within the workgroup (Levett-Jones, Lathlean, Maguire, & McMillan, 2006). In this regard, the relationship between *perceived* educational diversity and burnout may be stronger for employees who have a weaker sense of belonging. However, it may also be that greater *perceived* educational diversity may result in a weaker sense of belonging, which, in turn, leads to burnout.

As the results of this study suggest interpersonal conflict has a detrimental effect on the well-being of the individuals involved. This study provides a foundation to inform conflict theory with regard to the influence of conflict at work on individual well-being (De Dreu et al., 2004; Dijkstra et al., 2005) as well as other work-related attitudes. An interesting question that could be explored is whether conflict mediates the relationship between perceived diversity and intentions to leave. Given the prominence of the relationship between interpersonal conflict and burnout, future studies could concentrate on exploring the nature of this relationship. For example, are there other antecedents of burnout for which conflict serves as a mediator? The cross-sectional nature of this study does not make it possible to reveal the possible dynamic interplay between perceived differences, interpersonal conflict, and burnout. Longitudinal testing of my hypotheses is an essential direction for future research in this area, as is consideration of alternative models.

7.7   Conclusions

Diversity in the workforce is a phenomenon experienced globally, and nursing workplaces are no exception. Diversity is a complex phenomenon that refers to a range of demographic and nondemographic attributes. Despite its complexity, nursing leaders, policy makers, and researchers primarily focus on ethnic diversity, intergenerational diversity, and to a lesser extent gender diversity. Calls are commonly put forth for more diverse workforces as a way of improving care for clients of different ethnic backgrounds and as a necessity for creating effective and positive workgroup outcomes. However, such calls in the nursing literature are not supported by empirical evidence and the underlying assumptions have not been explored. The current study contributes to the growing body of contextualized diversity research by examining whether the effects of workgroup diversity are shaped by the social context within which workgroups function. In some instances, being different, or feeling different, contributes to the chronic, everyday interpersonal stress and emotional strain experienced on the job, that is, burnout. The differential patterns obtained between the diversity attributes and the various aspects of burnout support the ideas that (a) irrespective of the *actual* diversity within a workgroup it is individuals' subjective experience of being different that matters, (b) each attribute that people use to define themselves and others represents a unique dimension of diversity, and (c) in the prediction of burnout each diversity attribute has a unique pattern.

Although *actual* diversity may lead to some negative outcomes, such as lower job satisfaction and greater turnover intentions, the current study determined that *actual* diversity does not seem to produce burnout, at least not in a sample of Canadian nurses. I provided theoretical and empirical support for the argument that individuals who are different in their work values are more likely to experience conflict with their colleagues and subsequently a greater degree of burnout. The results of the current study also indicated that the psychological well-being of nurses is affected by their *perceived* educational diversity. Understanding the effects of diversity in a nursing context is of both theoretical and practical importance to improving the social climate of nurses' workplace environments, creating work climates that embrace diversity, identifying the types of conflict that occur among nurses, and building the capacity of individuals to enact a commitment to diversity. Such strategies could provide a means of lessening the occurrence of individual burnout and its consequences, such as lower

organizational commitment, job dissatisfaction, greater organizational and professional turnover, and compromised client care.

REFERENCES

Adams, V. W., & Price-Lea, P. J. (2004). A critical need for a more diverse nursing workforce. *North Carolina Medical Journal*, *65*, 98-100.

Alexander, J., Nuchols, B., Bloom, J., & Lee, S. Y. (1995). Organizational demography and turnover: An examination of multiform and nonlinear heterogeneity. *Human Relations*, *48*, 1455-1480.

Almost, J. (2006). Conflict within nursing work environments: Concept analysis. *Journal of Advanced Nursing*, *53*, 444-453.

Apostolidis, B. M., & Polifroni, E. C. (2006). Staff issues. Nurse work satisfaction and generational differences. *Journal of Nursing Administration*, *36*, 506-509.

Ashforth, B. E. (2001). *Role transitions in organizational life: An identity-based perspective*. Mahwah, NJ: Lawrence Erlbaum.

Avery, D. R., McKay, P. F., & Wilson, D. C. (2007). Engaging the aging workforce: The relationship between perceived age similarity, satisfaction with coworkers, and employee engagement. *Journal of Applied Psychology*, *92*, 1542-1556.

Ayoko, O. B., Callan, V. J., & Hartel, C. E. J. (2003). Workplace conflict, bullying, and counterproductive behaviors. *International Journal of Organizational Analysis, 11*, 283-301.

Barki, H., & Hartwick, J. (2004). Conceptualizing the construct of interpersonal conflict. *International Journal of Conflict Management*, *15*, 216-244.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173-1182.

Baumann, A., Blythe, J., Kolotylo, C., & Underwood, J. (2005). *Immigration and emigration trends: A Canadian perspective*. Ottawa, ON: The Nursing Sector Study Corporation.

Beauducel, A., & Herzberg, P. Y. (2006). On the performance of maximum likelihood versus means and variance adjusted weighted least squares estimation in CFA. *Structural Equation Modeling*, *13*, 186-203.

Beckstead, J. W. (2002). Confirmatory factor analysis of the Maslach Burnout Inventory among Florida nurses. *International Journal of Nursing Studies*, *39*, 785-792.

Bennington, A. (2006). *Looking forward: Planning for health human resources*. New Westminster, BC: Fraser Health Authority.

Bernard Hodes Group. (2006, March). *What nursing students want: A co-sponsored study by the Canadian Nursing Students' Association and Bernard Hodes Group.* Paper presented at in Vancouver by Bernard Hodes Group, Health Care Division.

Blythe, J., Baumann, A., Zeytinoglu, I. U., Denton, M., Akhtar-Danesh, N., Davies, S., et al. (2008). Nursing generations in the contemporary workplace. *Public Personnel Management*, *37*, 137-159.

Borkowski, N., Amann, R., Song, S. H., & Weiss, C. (2007). Nurses' intent to leave the profession: Issues related to gender, ethnicity, and educational level. *Health Care Management Review*, *32*, 160-167.

Bourgque, L. B., & Fielder, E. P. (2003). *How to conduct self-administered and mail surveys* (2nd ed.). Thousand Oaks, CA: Sage.

Brewer, M. B. (1995). Managing diversity: The role of social identities. In S. E. Jackson & M. N. Ruderman (Eds.), *Diversity in work teams: Research paradigms for a changing workplace* (pp. 47-68). Washington, DC: American Psychological Association.

Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. New York: Guilford Press.

Canadian Council on Social Development. (n.d.). *A demographic profile of Canada.* Retrieved April 24, 2009, from http://www.ccsd.ca/factsheets/demographics/

Canadian Institute for Health Information. (2004). *Workforce trends of registered nurses in Canada, 2003*. Ottawa, ON: Author.

Canadian Institute for Health Information. (2005). *Workforce trends of registered nurses in Canada, 2004*. Ottawa, ON: Author.

Canadian Institute for Health Information. (2007a). *Workforce trends of licensed practical nurses in Canada, 2006*. Ottawa, ON: Author.

Canadian Institute for Health Information. (2007b). *Workforce trends of registered nurses in Canada, 2006*. Ottawa, ON: Author.

Canadian Institute for Health Information. (2008). *Regulated nurses: Trends, 2003 to 2007*. Ottawa, ON: Author.

Canadian Nurses Association, & Canadian Federation of Nurses Unions. (2004, Sept). *Country report for the International Council of Nurses workforce forum (Wellington, New Zealand)*. Ottawa, ON: Canadian Nurses Association.

Canadian Nurses Association. (2002). *Planning for the future: Nursing human resource projections*. Ottawa, ON: Author.

Canales, M. K. (2000). Othering: Toward an understanding of difference. *Advances in Nursing Science*, *22*(4), 16-31.

Chatman, J. A., & Spataro, S. E. (2005). Using self-categorization theory to understand relational demography-based variations in people's responsiveness to organizational culture. *Academy of Management Journal*, *48*, 321-331.

Chatman, J. A., Polzer, J. T., Barsade, S. G., & Neale, M. A. (1998). Being different yet feeling similar: The influence of demographic composition and organizational culture on work processes and outcomes. *Administrative Science Quarterly*, *43*, 749-780.

Chattopadhyay, P. (1999). Beyond direct and symmetrical effects: The influence of demographic dissimilarity on organizational citizenship behavior. *Academy of Management Journal*, *42*, 273-287.

Chattopadhyay, P., George, E., & Lawrence, S. A. (2004). Why does dissimilarity matter? Exploring self-categorization, self-enhancement, and uncertainty reduction. *Journal of Applied Psychology*, *89*, 892-900.

Cho, J., Laschinger, H. K., & Wong, C. (2006). Workplace empowerment, work engagement and organizational commitment of new graduate nurses. *Canadian Journal of Nursing Leadership*, *19*, 43-60.

Chuang, Y., Church, R., & Zikic, J. (2004). Organizational culture, group diversity and intra-group conflict. *Team Performance Management*, *10*, 26-34.

Clark, M. A. (2001). *Perceived relational diversity: A fit conceptualization.* Unpublished doctoral dissertation, Arizona State University—Arizona.

Clark, M. A., Ostroff, C., & Atwater, L. (2002, August). *Perceived relational diversity: Moving beyond demographic attributes.* Paper presented at the Academy of Management Annual Meeting, Denver, CO.

College of Registered Nurses of British Columbia. (2005). *New graduate registered nurse study - 2005*. Vancouver, BC: Author.

Conger, A. J. (1974). A revised definition for suppressor variables: A guide to their identification and interpretation. *Educational and Psychological Measurement*, *34*, 35-46.

Cordeniz, J. A. (2002). Recruitment, retention, and management of Generation X: A focus on nursing professionals. *Journal of Healthcare Management*, *47*, 237-249.

Cordes, C. L., & Dougherty, T. W. (1993). A review and an integration of research on job burnout. *Academy of Management Review*, *18*, 621-656.

Cox, K. B. (2001). The effects of unit morale and interpersonal relations on conflict in the nursing unit. *Journal of Advanced Nursing*, *35*, 17-25.

Cox, K. B. (2003). The effects of intrapersonal, intragroup, and intergroup conflict on team performance effectiveness and work satisfaction. *Nursing Administration Quarterly*, *27*, 153-163.

Cox, T. (1995). The complexity of diversity: Challenges and directions for future research. In S. E. Jackson & M. N. Ruderman (Eds.), *Diversity in work teams: Research paradigms for a changing workplace* (pp. 235-245). Washington, DC: American Psychological Association.

Cunningham, G. (2007). Perceptions as reality: The influence of actual and perceived demographic dissimilarity. *Journal of Business and Psychology*, *22*, 79-89.

Cunningham, G. B., & Sagas, M. (2004). Examining the main and interactive effects of deep- and surface-level diversity on job satisfaction and organizational turnover intentions. *Organizational Analysis*, *12*, 319-332.

De Dreu, C. K. W., & Beersma, B. (2005). Conflict in organizations: Beyond effectiveness and performance. *European Journal of Work and Organizational Psychology*, *14*, 105-117.

De Dreu, C. K. W., van Dierendonck, D., & Maria, T. M. (2004). Conflict at work and individual well-being. *International Journal of Conflict Management*, *15*, 6-26.

Densten, I. L. (2001). Re-thinking burnout. *Journal of Organizational Behavior*, *22*, 833-847.

Dijkstra, M. T. M., van Dierendonck, D., & Evers, A. (2005). Responding to conflict at work and individual well-being: The mediating role of flight behaviour and feelings of helplessness. *European Journal of Work and Organizational Psychology*, *14*, 119-135.

Dillman, D. (2000). *Mail and internet surveys: The tailored design method*. New York: John Wiley.

DiTomaso, N., & Hooijberg, R. (1996). Diversity and the demands of leadership. *The Leadership Quarterly*, *7*, 163-187.

Dreachslin, J. L., Hunt, P. L., & Sprainer, E. (2000). Workforce diversity: Implications for the effectiveness of health care delivery teams. *Social Science and Medicine*, *50*, 1403-1414.

Druckman, D. (2005). *Doing research: Methods of inquiry for conflict analysis*. Thousand Oaks, CA: Sage.

Duchscher, J. E., & Cowin, L. (2004). Multigenerational nurses in the workplace. *Journal of Nursing Administration*, *34*, 493-501.

Duquette, A., Kerouac, S., Sandhu, B. K., & Beaudet, L. (1994). Factors related to nursing burnout: A review of empirical knowledge. *Issues in Mental Health Nursing*, *15*, 337-358.

Dussault, G., Fournier, M., Zanchetta, M. S., Kerouac, S., Denis, J., Bojanowski, L., et al. (1999). *The nursing labor market in Canada: Review of the literature*. Montreal, QC: University of Montreal.

Duxbury, L., & Higgins, C. (2003). *Where to work in Canada? An examination of regional differences in work life practices.* Retrieved April 28, 2009, from http://www.cprn.org/doc.cfm?doc=1220&l=en

Edwards, J. R. (1994). The study of congruence in organizational behavior research: Critique and a proposed alternative. *Organizational Behavior and Human Decision Processes*, *58*, 51-100.

Edwards, J. R., & Parry, M. E. (1993). On the use of polynomial regression equations as an alternative to difference scores. *Academy of Management Journal*, *36*, 1577-1613.

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, *4*, 272-299.

Farrell, G. A. (1998). The mental health of hospital nurses in Tasmania as measured by the 12-item General Health Questionnaire. *Journal of Advanced Nursing*, *28*, 707-712.

Finney, S. J., & DiStefano, C. (2006). Non-normal and categorical data in structural equation modeling. In G. R. Hancok & R. O. Mueller (Eds.), *Structural equation modeling: A second course* (pp. 269-314). Greenwich, CT: Information Age.

Flora, D. B., & Curran, P. J. (2004). An empirical evaluation of alternative methods of estimation for confirmatory factor analysis with ordinal data. *Psychological Methods*, *9*, 466-491.

Ford, M. E., & Kelly, P. A. (2005). Conceptualizing and categorizing race and ethnicity in health services research. *Health Services Research*, *40*, 1658-1675.

Fujiwara, K., Tsukishima, E., Tsutsumi, A., Kawakami, N., & Kishi, R. (2003). Interpersonal conflict, social support, and burnout among home care workers in Japan. *Journal of Occupational Health*, *45*, 313-320.

Garcia-Prieto, P., Bellard, E., & Schneider, S. C. (2003). Experiencing diversity, conflict, and emotions in teams. *Applied Psychology: An International Review*, *52*, 413-440.

Gardner, D. L. (1992). Conflict and retention of new graduate nurses. *Western Journal of Nursing Research*, *14*, 76-85.

Gates, M. G. (2005). *Demographic diversity, value congruence, and workplace outcomes in acute care.* Unpublished doctoral dissertation, University of North Carolina—Chapel Hill.

Gelfand, M. J., Kuhn, K. M., & Radhakrishman, P. (1996). The effect of value differences on social interaction processes and job outcomes: Implications for managing diversity. In M. N. Ruderman, M. W. Hughes-James & S. E. Jackson (Eds.), *Selected research on work team diversity* (pp. 53-71). Washington: DC: American Psychological Association.

Gerrish, K. (2000). Researching ethnic diversity in the British NHS: Methodological and practical concerns. *Journal of Advanced Nursing*, *31*, 918-925.

Giebels, E., & Janssen, O. (2005). Conflict stress and reduced well-being at work: The buffering effect of third-party help. *European Journal of Work and Organizational Psychology*, *14*, 137-155.

Gonzalez, J. A. (2001). *Personal and social identity in organizations: A study of organizational commitment.* Unpublished doctoral dissertation, Texas A & M University—College Station.

Greer, L. L., & Jehn, K. A. (2007). Where perception meets reality: The effects of different types of faultline perceptions, asymmetries, and realities on intersubgroup conflict and workgroup outcomes. *Proceedings of the Academy of Management, USA*, 1-6.

Gregory, D. M., Way, C. Y., LeFort, S., Barrett, B. J., & Parfrey, P. S. (2007). Predictors of registered nurses' organizational commitment and intent to stay. *Health Care Management Review*, *32*, 119-127.

Halbesleben, J. R. B., & Buckley, M. R. (2004). Burnout in organizational life. *Journal of Management*, *30*, 859-879.

Hancock, G. R. (2006). Power analysis in covariance structure modeling. In G. R. Hancock & R. O. Mueller (Eds.), *Structural Equation Modeling* (pp. 69-115). Greenwich, CT: Information Age.

Hancock, G. R., & Freeman, M. J. (2001). Power and sample size for the root mean square error of approximation test of not close fit in structural equation modeling. *Educational and Psychological Measurement*, *61*, 741-758.

Harrison, D. A., Price, K. H., & Bell, M. P. (1998). Beyond relational demography: Time and the effects of surface- and deep-level diversity on work group cohesion. *Academy of Management Journal*, *41*, 96-106.

Hartrick Doane, G., & Varcoe, C. (2006). The "hard spots" of family nursing: Connecting across difference and diversity. *Journal of Family Nursing*, *12*, 7-21.

Hershberger, S. L. (2006). The problem of equivalent structural models. In G. R. Hancok & R. O. Mueller (Eds.), *Structural equation modeling: A second course* (pp. 13-41). Greenwich, CT: Information Age.

Hillhouse, J. J., & Adler, C. M. (1997). Investigating stress effect patterns in hospital staff nurses: Results of a cluster analysis. *Social Science and Medicine*, *45*, 1781-1788.

Hobman, E. V., & Bordia, P. (2006). The role of team identification in the dissimilarity-conflict relationship. *Group Processes and Intergroup Relations*, *9*, 483-507.

Hobman, E. V., Bordia, P., & Gallois, C. (2003). Consequences of feeling dissimilar from others in a work team. *Journal of Business and Psychology*, *17*, 301-325.

Hobman, E. V., Bordia, P., & Gallois, C. (2004). Perceived dissimilarity and work group involvement: The moderating effects of group openness to diversity. *Group and Organization Management*, *29*, 560-587.

Hoyle, R. H., & Smith, G. T. (1994). Formulating clinical research hypotheses as structural equation models: A conceptual overview. *Journal of Consulting and Clinical Psychology*, *62*, 429-440.

Hu, J., Herrick, C., & Hodgin, K. A. (2004). Managing the multigenerational nursing team. *Health Care Manager*, *23*, 334-340.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1-55.

Ilhan, M. N., Durukan, E., Taner, E., Maral, I., & Bumin, M. A. (2008). Burnout and its correlates among nursing staff: Questionnaire survey. *Journal of Advanced Nursing*, *61*, 100-106.

Jackson, S. E., & Joshi, A. (2004). Diversity in social context: A multi-attribute, multilevel analysis of team diversity and sales performance. *Journal of Organizational Behavior*, *25*, 675-702.

Jackson, S. E., Brett, J. F., Sessa, V. I., Cooper, D. M., Julin, J. A., & Peyronnin, K. (1991). Some differences make a difference: Individual dissimilarity and group heterogeneity as correlates of recruitment, promotions, and turnover. *Journal of Applied Psychology*, *76*, 675-689.

Jackson, S. E., Stone, V. K., & Alvarez, E. B. (1993). Socialization amidst diversity: The impact of demographics on work team oldtimers and newcomers. *Research in Organizational Behavior*, *15*, 45-109.

Janssen, P. P. M., Jonge, J., & Bakker, A. B. (1999). Specific determinants of intrinsic work motivation, burnout and turnover intentions: A study among nurses. *Journal of Advanced Nursing*, *29*, 1360-1369.

Jehn, K. A. (1994). Enhancing effectiveness: An investigation of advantages and disadvantages of value-based intragroup conflict. *International Journal of Conflict Management*, *5*, 223-238.

Jehn, K. A. (1995). A multimethod examination of the benefits and detriments of intragroup conflict. *Administrative Science Quarterly*, *40*, 256-282.

Jehn, K. A. (1997). A qualitative analysis of conflict types and dimensions in organizational groups. *Administrative Science Quarterly*, *42*, 530-557.

Jehn, K. A., & Bendersky, C. (2003). Intragroup conflict in organizations: A contingency perspective on the conflict-outcome relationship. In R. M. Kramer & B. M. Staw (Eds.), *Research in Organizational Behavior* (Vol. 25, pp. 187-243). Oxford, England: Elsevier.

Jehn, K. A., & Bezrukova, K. (2004). A field study of group diversity, workgroup context, and performance. *Journal of Organizational Behavior*, *25*, 703-729.

Jehn, K. A., & Chatman, J. A. (2000). The influence of proportional and perceptual conflict composition on team performance. *International Journal of Conflict Management*, *11*, 56-73.

Jehn, K. A., & Mannix, E. A. (2001). The dynamic nature of conflict: A longitudinal study of intragroup conflict and group performance. *Academy of Management Journal*, *44*, 238-251.

Jehn, K. A., Chadwick, C., & Thatcher, S. M. B. (1997). To agree or not to agree: The effects of value congruence, individual demographic dissimilarity, and conflict on workgroup outcomes. *International Journal of Conflict Management*, *8*, 287-305.

Jehn, K. A., Northcraft, G. B., & Neale, M. A. (1999). Why differences make a difference: A field study of diversity, conflict, and performance in workgroups. *Administrative Science Quarterly*, *44*, 741-763.

Jobquality.ca. (2009a). *Stress and hours of work*. Retrieved April 28, 2009, from http://www.jobquality.ca/indicators/environment/phy5.shtml

Jobquality.ca. (2009b). *Stress and workplace relationships*. Retrieved April 28, 2009, from http://www.jobquality.ca/indicators/environment/phy6.shtml

Johnson, J. L., Bottorff, J. L., Browne, A. J., Grewal, S., Hilton, B. A., & Clarke, H. (2004). Othering and being othered in the context of health care services. *Health Communication*, *16*, 255-271.

Keller, K. M. (2005). *Being different: A study of relational demography and the influence of individual and team characteristics.* Unpublished doctoral dissertation, University of Maryland—Baltimore.

Kirchmeyer, C. (1995). Demographic similarity in the work group: A longitudinal study of managers at the early career stage. *Journal of Organizational Behavior*, *16*, 67-83.

Kirkman, B. L., Tesluk, P. E., & Rosen, B. (2004). The impact of demographic heterogeneity and team leader: Team member demographic fit on team empowerment and effectiveness. *Group and Organization Management*, *29*, 334-368.

Kitaoka-Higashiguchi, K. (2005). Burnout as a developmental process among Japanese nurses: investigation of Leiter's model. *Japan Journal of Nursing Science*, *2*, 9-16.

Kline, R. B. (2005). *Principles and practices of structural equation modeling* (2nd ed.). New York: Guilford Press.

Lang, G. M. (2007). *The work environment of army hospital nurses: Measurement and construct validity.* Unpublished doctoral dissertation, University of Maryland—Baltimore.

Laschinger, H. K. S., & Leiter, M. P. (2006). The impact of nursing work environments on patient safety outcomes: The mediating role of burnout/engagement. *Journal of Nursing Administration*, *36*, 259-267.

Laschinger, H. K. S., Shamian, J. & Thomson, D. (2001). Impact of magnet hospital characteristics of nurses' perceptions of trust, burnout, quality care, and work satisfaction. *Nursing Economics, 19*, 209-219.

Lavoie-Tremblay, M., Bourbonnais, R., Viens, C., Vezina, M., Durand, P. J., & Rochette, L. (2005). Improving the psychosocial work environment. *Journal of Advanced Nursing*, *49*, 655-664.

Leiter, M. P., & Maslach, C. (1988). The impact of interpersonal environment on burnout and organizational commitment. *Journal of Organizational Behavior*, *9*, 297-308.

Levett-Jones, T., Lathlean, J., Maguire, J., & McMillan, M. (2006). Belongingness: A critique of the concept and implications for nursing education. *Nurse Education Today*, *27*, 210-218.

Liao, H., Chuang, A., & Joshi, A. (2008). Perceived deep-level dissimilarity: Personality antecedents and impact on overall job attitude, helping, work withdrawal, and turnover. *Organizational Behavior and Human Decision Processes*, *106*, 106-124.

Liao, H., Joshi, A., & Chuang, A. C. (2004). Sticking out like a sore thumb: Employee dissimilarity and deviance at work. *Personnel Psychology*, *57*, 969-1000.

Lowe, G. S. (2006). *Creating healthy health care workplaces in British Columbia: Evidence for action*. Vancouver, BC: Provincial Health Services Authority.

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, *1*, 130-149.

MacKinnon, D. P. (2008). *Introduction to statistical mediation analysis*. New York: Lawrence Erlbaum.

MacKinnon, D. P., Krull, J. L., & Lockwood, C. M. (2000). Equivalence of the mediation, confounding and suppression effect. *Prevention Science*, *1*, 173-181.

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, *7*, 83-104.

Mangione, T. W. (1998). Mail surveys. In L. Bickman & D. J. Rog (Eds.), *Handbook of applied social research methods* (pp. 399-427). Thousand Oaks, CA: Sage.

Maslach, C. (1982). *Burnout: The cost of caring*. Englewood Cliffs, NJ: Prentice-Hall.

Maslach, C. (2003). Job burnout: New directions in research and intervention. *Current Directions in Psychological Science*, *12*, 189-192.

Maslach, C., & Leiter, M. P. (2008). Early predictors of job burnout and engagement. *Journal of Applied Psychology*, *93*, 498-512.

Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach Burnout Inventory manual* (3rd ed.). Mountain View, CA: Consulting Psychologists Press.

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, *52*, 397-422.

Matus, J. C. (2003). The movement for diversity in health care management. *Health Care Manager*, *22*, 117-121.

McCain, B. E., O'Reilly III, C., & Pfeffer, J. (1983). The effects of departmental demography on turnover: The case of a university. *Academy of Management Journal*, *26*, 626-641.

McGrath, J. E., Berdahl, J. L., & Arrow, H. (1995). Traits, expectations, culture, and clout: The dynamics of diversity in work groups. In S. E. Jackson & M. N. Ruderman (Eds.), *Diversity in work teams: Research paradigms for a changing workplace* (pp. 17-46). Washington, DC: American Psychological Association.

McKenna, B. G., Smith, N. A., Poole, S. J., & Coverdale, J. H. (2003). Horizontal violence: Experiences of registered nurses in their first year of practice. *Journal of Advanced Nursing*, *42*, 90-96.

McNeese-Smith, D., & Crook, M. (2003). Nursing values and a changing nurse workforce: Values, age, and job stages. *Journal of Nursing Administration*, *33*, 260-270.

Miller, M. J., Woehr, D. J., & Hudspeth, N. (2002). The meaning and measurement of work ethic: Construction and initial validation of a multidimensional inventory. *Journal of Vocational Behavior*, *60*, 451-489.

Mulki, J. P., Jaramillo, J. F., & Locander, W. B. (2008). Effect of ethical climate on turnover intention: Linking attitudinal- and stress theory. *Journal of Business Ethics*, *78*, 559-574.

Munro, B. H. (2001). *Statistical methods for health care research* (4th ed.). Philadelphia: Lippincott Williams & Wilkins.

Muthen, L. K., & Muthen, B. O. (2006, Feb 6). Missing in EFA/CFA [M*plus* discussion]. Message posted to http://www.statmodel.com/discussion/messages/22/481.html

Muthen, L. K., & Muthen, B. O. (2006, Jan 20). Calculating df when using the WLSM estimator [M*plus* discussion]. Message posted to http://www.statmodel.com/discussion/messages/23/76.html?1209151287

Muthen, L. K., & Muthen, B. O. (2006, May 4). Composite reliability [M*plus* discussion]. Message posted to http://www.statmodel.com/discussion/messages/9/258.html?1213395730

Muthen, L. K., & Muthen, B. O. (2007). *Mplus user's guide* (5th ed.). Los Angeles: Muthen & Muthen.

Muthen, L. K., & Muthen, B. O. (2008). *Mplus user guide* [Online technical appendices]. Available from the M*plus* Web site, http://www.statmodel.com

Northcraft, G. B., Polzer, J. T., Neale, M. A., & Kramer, R. M. (1995). Diversity, social identity, and performance: Emergent social dynamics in cross-functional teams. In S. E. Jackson & M. N. Ruderman (Eds.), *Diversity in work teams: Research paradigms for a changing workplace* (pp. 69-96). Washington, DC: American Psychological Association.

Nugent, K. E., Childs, G., Jones, R., Cook, P., & Ravenell, K. (2002). Said another way. Call to action: The need to increase diversity in the nursing workforce. *Nursing Forum*, *37*, 28-32.

O'Reilly III, C. A., Caldwell, D. F., & Barnett, W. P. (1989). Work group demography, social integration, and turnover. *Administrative Science Quarterly*, *34*, 21-37.

Payne, N. (2001). Occupational stressors and coping as determinants of burnout in female hospice nurses. *Journal of Advanced Nursing, 33,* 396-405.

Pearson, A. W., Ensley, M. D., & Amason, A. C. (2002). An assessment and refinement of Jehn's Intragroup Conflict Scale. *International Journal of Conflict Management*, *13*, 110-126.

Pelled, L. H. (1996a). Demographic diversity, conflict, and work group outcomes: An intervening process theory. *Organization Science: A Journal of the Institute of Management Sciences*, *7*, 615-631.

Pelled, L. H. (1996b). Relational demography and perceptions of group conflict and performance: A field investigation. *International Journal of Conflict Management*, *7*, 230-246.

Pelled, L. H., & Adler, P. S. (1994). Antecedents of intergroup conflict in multifunctional product development teams: A conceptual model. *IEEE Transactions on Engineering Management*, *41*, 21-28.

Pelled, L. H., Eisenhardt, K. M., & Xin, K. R. (1999). Exploring the black box: An analysis of work group diversity, conflict, and performance. *Administrative Science Quarterly*, *44*, 1-28.

Pelled, L. H., Xin, K. R., & Weiss, A. M. (2001). No es como mi: Relational demography and conflict in a Mexican production facility. *Journal of Occupational and Organizational Psychology*, *74*, 63-84.

Pfeffer, J. (1983). Organizational demography. In L. L. Cummings & B. M. Staw (Eds.), *Research in Organizational Behavior* (Vol. 5, pp. 299-357). Greenwich, CT: JAI Press.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*, 879-903.

Quine, L. (2001). Workplace bullying in nurses. *Journal of Health Psychology*, *6*, 73-84.

Rahim, M. A. (1983). Measurement of organizational conflict. *Journal of General Psychology*, *109*, 189-199.

Randle, J. (2003). Bullying in the nursing profession. *Journal of Advanced Nursing*, *43*, 395-401.

Riordan, C. M. (1997). Advancing relational demography theory: A construct validity study of three measures of demographic similarity. *Proceedings of the Academy of Management, USA,* 159-163.

Riordan, C. M. (2000). Relational demography within groups: Past developments, contradictions, and new directions. In G. R. Ferris (Ed.), *Research in personnel and human resources management* (Vol. 19, pp. 131-173). New York: Elsevier Science.

238

Riordan, C. M., & Holliday Wayne, J. (2008). A review and examination of demographic similarity measures used to assess relational demography within groups. *Organizational Research Methods*, *11*, 562-592.

Riordan, C. M., & Shore, L. M. (1997). Demographic diversity and employee attitudes: An empirical examination of relational demography within work units. *Journal of Applied Psychology*, *82*, 342-358.

Rowe, M. M., & Sherlock, H. (2005). Stress and verbal abuse in nursing: Do burned out nurses eat their young? *Journal of Nursing Management*, *13*, 242-248.

Ryten, E. (1997). *A statistical picture of the past, present, and future of registered nurses in Canada*. Ottawa, ON: Canadian Nurses Association.

Sa, L., & Fleming, M. (2008). Bullying, burnout, and mental health amongst Portuguese nurses. *Issues in Mental Health Nursing*, *29*, 411-426.

Sacco, J. M., & Schmitt, N. (2005). A dynamic multilevel model of demographic diversity and misfit effects. *Journal of Applied Psychology*, *90*, 203-231.

Sahraian, A., Fazelzadeh, A., Mehdizadeh, A. R., & Toobaee, S. H. (2008). Burnout in hospital nurses: A comparison of internal, surgery, psychiatry and burns wards. *International Nursing Review*, *55*, 62-67.

Salanova, M., Llorens, S., Garcia-Renedo, M., Burriel, R., Breso, E., & Schaufeli, W. B. (2005). Toward a four-dimensional model of burnout: A multigroup factor-analytic study including depersonalization and cynicism. *Educational and Psychological Measurement*, *65*, 901-913.

Santos, S. R., & Cox, K. (2000). Workplace adjustment and intergenerational differences between Matures, Boomers, and Xers. *Nursing Economics*, *18*, 7-13.

Santos, S. R., & Cox, K. S. (2002). Generational tension among nurses: Baby-boomers and Generation Xers: The silent treatment doesn't work. *American Journal of Nursing*, *102*, 11.

Santos, S. R., Carroll, C. A., Cox, K. S., Teasley, S. L., Simon, S. D., Bainbridge, L., et al. (2003). Baby boomer nurses bearing the burden of care: A four-site study of stress, strain, and coping for inpatient registered nurses. *Journal of Nursing Administration*, *33*, 243-250.

Sawatzky, R. (2007). *The measurement of quality of life and its relationship with perceived health status in adolescents*. Unpublished doctoral dissertation, University of British Columbia, Vancouver, British Columbia, Canada.

Schaufeli, W. B., & Van Dierendonck, D. (1993). The construct of two burnout measures. *Journal of Organizational Behavior*, *14*, 631-674.

Schaufeli, W. B., Bakker, A. B., Hoogduin, K., Schaap, C., & Kladler, A. (2001). On the clinical validity of the Maslach Burnout Inventory and the Burnout Measure. *Psychology and Health*, *16*, 565-582.

Schaufeli, W. B., Maslach, C., & Marek, T. (Eds.). (1993). *Professional burnout: Recent developments in theory and research*. Washington, DC: Taylor and Francis.

Schneider, S. K., & Northcraft, G. V. (1999). Three social dilemmas of workforce diversity in organizations: A social identity perspective. *Human Relations*, *52*, 1445-1467.

Schumacker, R. E., & Lomax, R. G. (2004). *A beginner's guide to structural equation modeling* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum.

Schwarz, A., Schwarz, C., & Rizzuto, T. (2008). *Examining the "urban legend" of common method bias: Nine common errors and their impact.* Paper presented at the 41st Annual Hawaii International Conference on Social Sciences, Koloa, Kauai, HI.

Shader, K., Broome, M. E., Broome, C. D., West, M. E., & Nash, M. (2001). Factors influencing satisfaction and anticipated turnover for nurses in an academic medical center. *Journal of Nursing Administration*, *31*, 210-216.

Shea-Lewis, A. (2002). Workforce diversity in healthcare. *Journal of Nursing Administration*, *32*, 6-7.

Shields, M., & Wilkins, K. (2006). *Findings from the 2005 national survey of the work and health of nurses*. Ottawa, ON: Statistics Canada.

Siegall, M., & McDonald, T. (2004). Person-organization value congruence, burnout and diversion of resources. *Personnel Review*, *33*, 291-301.

Simons, T. L., & Peterson, R. S. (2000). Task conflict and relationship conflict in top management teams: The pivotal role of intragroup trust. *Journal of Applied Psychology*, *85*, 102-111.

Smola, K. W., & Sutton, C. D. (2002). Generational differences: Revisiting generational work values for the new millennium. *Journal of Organizational Behavior*, *23*, 363-382.

Statistics Canada. (2003, June). *Definitions, data sources and methods -- concepts and variables: Ethnicity.* Retrieved March 1, 2006, from http://www.statcan.ca/english/concepts/definitions/ethnicity.htm

Statistics Canada. (2005). *Population projections of visible minority groups, Canada, provinces, and regions (2001-2017)* (No. 91-541-XIE). Ottawa, ON: Statistics Canada.

Statistics Canada. (2006). *Profile of immigrants in BC communities 2006: Mainland-Southwest.* Retrieved November 17, 2008, from http://www.welcomebc.ca/en/growing_your_community/trends/2006/

Statistics Canada. (2007a). *Age groups and sex for the population of Canada, provinces and territories, 1921 to 2006 census - 100% data* (Table). Topic-based tabulation. Retrieved April 28, 2009 from http://www12.statcan.ca/english/census06/data/topics/index.cfm?Temporal=2006&APATH=3

Statistics Canada. (2007b). *Portrait of the Canadian population in 2006, by age and sex, 2006 Census* (No. 97-551-XIE). Ottawa, ON: Minister of Industry, Statistics Canada.

Stevens, S. (2002). Nursing workforce retention: Challenging a bullying culture. *Health Affairs*, *21*, 189-193.

Stordeur, S., D'Hoore, W., & Vandenberghe, C. (2001). Leadership, organizational stress, and emotional exhaustion among hospital nursing staff. *Journal of Advanced Nursing*, *35*, 533-542.

Stuenkel, D. L., Cohen, J., & de la Cuesta, K. M. (2005). The multigenerational nursing work force: Essential differences in perception of work environment. *Journal of Nursing Administration*, *35*, 283-285.

Swearingen, S., & Liberman, A. (2004). Nursing generations: An expanded look at the emergence of conflict and its resolution. *Health Care Manager*, *23*, 54-64.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). New York: Harper Collins.

Tajfel, H. (1978). The psychological structure of intergroup relations. In H. Tajfel (Ed.), *Differentiation between social groups: Studies in the social psychology of intergroup relations*. London: Academic Press.

Tajfel, H. & Turner, J. (1986). The social identity theory of intergroup behavior. In S. Worchel & W. Austin (Eds.), *Psychology of intergroup relations* (pp. 7-24). Chicago: Nelson-Hall.

Taris, T. W., Le Blanc, P. M., Schaufeli, W. B., & Schreurs, P. J. G. (2005). Are there causal relationships between the dimensions of the Maslach Burnout Inventory? A review and two longitudinal tests. *Work and Stress*, *19*, 238-255.

Taylor, B. (2001). Identifying and transforming dysfunctional nurse-nurse relationships through reflective practice and action research. *International Journal of Nursing Practice*, *7*, 406-413.

Tervo-Heikkinen, T., Partanen, P., Aalto, P., & Vehvilainen-Julkunen, K. (2008). Nurses' work environment and nursing outcomes: A survey study among Finnish university hospital registered nurses. *International Journal of Nursing Practice*, *14*, 357-365.

Thomas, D. R., Hughes, E., & Zumbo, B. D. (1998). On variable importance in linear regression. *Social Indicators Research*, *45*, 253-275.

Tsui, A. S., & Gutek, B. A. (1999). *Demographic differences in organizations: Current research and future directions*. Lanham, MD: Lexington Books.

Tsui, A. S., Egan, T. D., & O'Reilly III, C. A. (1992). Being different: Relational demography and organizational attachment. *Administrative Science Quarterly*, *37*, 549-579.

Tsui, A. S., Xin, K. R., & Egan, T. D. (1995). Relational demography: The missing link in vertical dyad linkages. In S. E. Jackson & M. N. Ruderman (Eds.), *Diversity in work teams: Research paradigms for a changing workplace* (pp. 97-130). Washington, DC: American Psychological Association.

Turner, J. (1987). *Rediscovering the social group: A self-categorization theory*. Oxford, England: Blackwell.

Turner, J. (1982). Towards a cognitive redefinition of the social group. In H. Tajfel (Ed.), *Social identity and intergroup relations* (pp. 15-40). Cambridge, UK: Cambridge University Press.

Urban Dictionary. (n.d.). *Internalized oppression*. Retrieved Dec 7, 2008, from http://www.urbandictionary.com

Van der Vegt, G. S., & Van de Vliert, E. (2005). Effects of perceived skill dissimilarity and task interdependence on helping in work teams. *Journal of Management*, *31*, 73-89.

van Knippenberg, D., De Dreu, C. K. W., & Homan, A. C. (2004). Work group diversity and group performance: An integrative model and research agenda. *Journal of Applied Psychology*, *89*, 1008-1022.

Verplanken, B. (2004). Value congruence and job satisfaction among nurses: A human relations perspective. *International Journal of Nursing Studies*, *41*, 599-605.

Wagner, W. G., Pfeffer, J., & O'Reilly III, C. A. (1984). Organizational demography and turnover in top-management groups. *Administrative Science Quarterly*, *29*, 74-93.

Wayne, F. S. (1989). An instrument to measure adherence to the Protestant Ethic and Contemporary Work Values. *Journal of Business Ethics*, *8*, 793-804.

Webber, S. S., & Donahue, L. M. (2001). Impact of highly and less job-related diversity on work group cohesion and performance: A meta-analysis. *Journal of Management*, *27*, 141-162.

Wesolowski, M. A., & Mossholder, K. W. (1997). Relational demography in supervisor-subordinate dyads: Impact on subordinate job satisfaction, burnout, and perceived procedural justice. *Journal of Organizational Behavior*, *18*, 351-362.

Widger, K., Wilson-Keates, B., Pye, C., Cranley, L., Squires, M., & Tourangeau, A. (2007). Generational differences in acute care nurses. *Canadian Journal of Nursing Leadership*, *20*, 49-61.

Williams, H. M., Parker, S. K., & Turner, N. (2007). Perceived dissimilarity and perspective taking within work teams. *Group & Organization Management*, *32*, 569-597.

Williams, K. Y., & O'Reilly III, C. A. (1998). Demography and diversity in organizations: A review of 40 years of research. *Research in Organizational Behavior*, *20*, 77-140.

Women's Rural Advocacy Programs. (n.d.). *Internalized oppression*. Retrieved Dec 7, 2008, from http://www.letswrap.com/nadvinfo/internal.htm

Wong, S., & Wong, J. (1980). Representation of racial minority students in selected Canadian university schools of nursing. *Journal of Advanced Nursing*, *5*, 83-90.

Wu, A. D., & Zumbo, B. D. (2008). Understanding and using mediators and moderators. *Social Indicators Research*, *87*, 367-392.

Yildirim, A., & Yildirim, D. (2007). Mobbing in the workplace by peers and managers: Mobbing experienced by nurses working in healthcare facilities in Turkey and its effect on nurses. *Journal of Clinical Nursing*, *16*, 1444-1453.

Zeytinoglu, I. U., Denton, M., Davies, S., Baumann, A., Blythe, J., & Boos, L. (2007). Association between work intensification, stress and job satisfaction. *Industrial Relations*, *62*, 201-225.

Zumbo, B. D. (2007). Validity: Foundational issues and statistical methodology. In C. R. Rao & S. Sinharay (Eds.), *Handbook of statistics* (Vol. 26, pp. 45-79). Amsterdam: Elsevier Science.

APPENDICES

APPENDIX A: SUMMARY TABLES OF THE REVIEW OF THE RELATIONAL DIVERSITY LITERATURE

Table A.1 Summary of Articles about *Actual* Relational Diversity within Workgroups

Study	Diversity variables	Outcome variables	Sample population and size	Sample characteristics	Referent unit	Measure-ment approach	Findings
Chattopadhyay (1999)	Age Ethnicity/ race	Peers relations (trust in and attraction to peers)	Random sample of units from four United States organizations: 2 computer manufacturers, university, and transportation company, *N* = 401 (42 workgroups) (91% response rate)	Women = 51% Race = 49% white Average tenure = 3 years	All employees from each workgroup	Euclidean Distance	• *Actual* ethnicity/race was not correlated. • *Actual* age diversity was predictive of peer relations in that the greater the age dissimilarity within the workgroup the less likely individuals' trustworthiness of and attraction to their peers. • There were differential age effects in that peers' relations with older employees were poorer when age diversity was greater and peers' relations with younger employees were stronger when age diversity was greater.
Clark (2001)	Age Ethnicity/ race	Job satisfaction Organizational commitment Turnover intention Satisfaction with coworkers	United States probation departments *N* = 346 (101 workgroups) (33% response rate)	Women = 63% Race = 81% White Average age = 40 years Average tenure = 7 years	Unsure	Polynomial regression	• *Actual* age and ethnicity/race was not predictive of job satisfaction, turnout intention, affective commitment, and satisfaction with coworkers.
Cunningham and Sagas (2004)	Ethnicity/ race	Job satisfaction Organizational turnover intention	United States basketball, track and football coaches, *N* = 235 (37% response rate)	Race = 32% African American	Coaches report demographic information about themselves and others on their coaching staff	Euclidean Distance	• *Actual* ethnic diversity was not predictive of turnover intentions or job satisfaction.

Study	Diversity variables	Outcome variables	Sample population and size	Sample characteristics	Referent unit	Measure-ment approach	Findings
Gelfand , Kuhn, and Radhakrishman (1996)	Values	Quality of communication	Large United States organization, *N* = 239 (40% response rate)	Women = 18% Race = 66% White Median age = 47 years Tenure = 59% >10 years	98 supervisor–employee pairs	Value congruence measured by the sum of the absolute difference between the means of the 8 value types for each supervisor–employee pair	• *Actual* value diversity was a significant predictor of the quality of communication between employees and their supervisors. Greater diversity hinders communication.
Gonzalez (2001)	Age Ethnicity/ race Values	Organizational commitment Job turnover intentions	Restaurant chain in the United States *N* = 291 (37 restaurants) (12% response rate), Average of 13 (range = 1-31) responses per workgroup responded.	Women = 56% Race = 53% White Average age = 29 years	All employees from each restaurant	Euclidean Distance Value congruence measured using a comparative emphasis scale of 24 pairs of value statements	• No association between *actual* age, ethnicity/race, and values diversity and organizational commitment and job turnover intentions.
Jackson, Brett, Sessa, Cooper, Julin, and Peyronnin (1991)	Age Education	Actual job turnover	Random sample of United States executives from bank holding companies, *N* = 625 (93 teams)	Women = 67% Race = 88% Caucasian Average age = 55 years Average tenure = 16 years	Executives in top manage-ment teams	Euclidean Distance	• Individuals were more likely to leave their job if they were dissimilar from their colleagues in terms of their educational level but not age.
Keller (2005)	Ethnicity/ race	Team commitment Turnover intentions Psychological empowerment	Employees working in a university library system in the US, *N* = 163 (37 teams) (71%	Women = 65% Race = 64% White Average age = 46 years	All employees from team structure, average 8	Euclidean Distance Polynomial regression	• *Actual* diversity in ethnicity/race failed to predict individuals' commitment to their team, turnover intentions, or psychological empowerment.

245

Study	Diversity variables	Outcome variables	Sample population and size	Sample characteristics	Referent unit	Measure-ment approach	Findings
			response rate and within team response rate of 78%)	Education = min of a baccalaureate degree	members (range = 3-16) per team		• Both approaches to measuring *actual* relational diversity resulted in the same findings. • Preliminary support for the asymmetrical effects of ethnicity/race differences.
Liao, Chuang, and Joshi (2008)	Age Education	Work withdrawal Helping behaviour Overall job attitude (i.e., job satisfaction and affective commitment)	Study 1: Apparel franchise in Taiwan, *N* = 271 (107 stores) (85% response rate) Study 2: Salon franchise in Taiwan, *N* = 443 (112 stores) (97% response rate)	Mainly female. Other demographics not clearly indicated.	All employees from each store (Average size = 3 employees with flexible shifts) and salon (Average size = 4 employees)	Euclidean Distance	• *Actual* age and educational diversity was not a statistically significant predictor of work withdrawal or overall job attitude (i.e., job satisfaction and affective commitment). • *Actual* educational diversity was not predictive of helping behaviour but *actual* age diversity was. • *Actual* educational diversity was a weak predictor of actual turnover in that the more diversity that existed in a workgroup with regard to education the greater the likelihood of voluntary job turnover.
Liao, Joshi, and Chuang (2004)	Age Ethnicity /race	Coworker satisfaction Coworker support Organizational commitment	United States restaurant franchise, *N* = 286 (26 stores) (38% response rate), 5-21 employees	Women = 67% Race = 88% Caucasian Average age = 26 years Average tenure = 2.5 years	All employees from each store (Average size = 25 employees), flexible shifts	Euclidean Distance	• *Actual* age and ethnic/racial diversity did not predict satisfaction with coworkers. • *Actual* ethnic/racial diversity was not associated with perceived coworker support. • Counter to the hypothesis, greater *actual* age diversity was associated with greater coworker support (variance = 4% inconjunction with openness to experience). • *Actual* age diversity did not predict organizational commitment but *actual* ethnic/racial diversity did.

Study	Diversity variables	Outcome variables	Sample population and size	Sample characteristics	Referent unit	Measure-ment approach	Findings
Riordan and Holliday Wayne (2008)	Age Education Ethnicity/ race	Workgroup identification Organizational commitment Openness to communication Turnover intentions	United States financial service organizations, $N =$ 340 (42 workgroups) (90% response rate)	Women = 85% Race = 90% Caucasian Average age = 35 years Average tenure = 7 years Education = 30% college degree Position = 30% management	All employees from each workgroup	Euclidean Distance Polynomial regression	• *Actual* ethnicity/race and education diversity were not predictive of workgroup identification, organizational commitment, openness to communication, or turnover intentions. • *Actual* age diversity was not predictive of organizational commitment or openness of communication. • Greater *actual* age diversity was predictive of greater turnover intentions and lower workgroup identification.
Riordan and Shore (1997)	Ethnicity/ race	Workgroup cohesiveness Workgroup commitment Workgroup productivity	United States insurance company employees, $N =$ 1,554 (98 workgroups) (response rate > 90%)	Women = 80% Race = 63% white	All employees from each workgroup	Polynomial regression	• The greater *actual* ethnic/racial diversity between individuals and others in a workgroup the more negative were individuals' attitudes toward the workgroup, specifically through lower levels of commitment to the workgroup and productivity. • Ethnic/racial diversity did not result in diminished feelings of group cohesiveness. • Nonsymmetrical effects for ethnicity/race diversity when individuals represented the minority in a workgroup. Not all individuals were affected the same given the ethnic/racial makeup of the group.
Tsui, Etan, and O'Reilly III (1992)	Age Education Ethnicity/ race	Organizational commitment Intentions to stay Absetneeism	Three United States organizations: manufacturing plant, mental health hospital, and	Women = 33% Race = 10% from minority groups Average age = 40 years	Random sample of each workgroup to obtain minimum of	Euclidean Distance	• Greater *actual* diversity in ethnicity/race predicted lower organizational commitment, intentions to stay with the organization and higher frequency of absences but *actual*

Study	Diversity variables	Outcome variables	Sample population and size	Sample characteristics	Referent unit	Measure-ment approach	Findings
			computer business, N = 1,705 (12 per unit) (34% response rate)	Average tenure = 11 years	20 employees. Both supervisor and nonsupervisory personnel.		educational diversity was not statistically significant. • *Actual* age diversity was only predictive of lower intentions to stay with the organization. • Differential effects for ethnicity/race.
Van der Vegt and Van de Vliert (2005)	Age	Helping behaviour	Dutch students enrolled in management course, N = 74 (15 teams) (65% response rate)	Women = 54% Race = 100% Caucasian Average age = 21.1 years	Group assignment teams.	Euclidean Distance	• *Actual* age diversity was not predictive of helping behaviour.

Note. In the studies presented here other attributes may have been examined but only those relevant to this study (i.e., age, education, ethnicity/race, and work values) are reported. Furthermore, only outcome variables related to the consequences of burnout and collegial relationships are reported.

Table A.2 Summary of Relevant Articles about *Perceived* Relational Diversity within Workgroup

Study	Diversity variables	Outcome variables	Sample population and size	Sample characteristics	Referent unit	Measure-ment approach	Findings
Clark (2001)	Age Ethnicity/race Personal attributes (work values, career goals, personality, sense of humour, creativity, intelligence, and work habits)	Job satisfaction Organizational commitment Turnover intention Satisfaction with coworkers	United States probation departments $N =$ 346 (101 workgroups) (33% response rate)	Women = 63% Race = 81% White Average age = 40 years Average tenure = 7 years	Unsure	Perceived diversity	• *Perceived* age was negatively associated with individuals' satisfaction with their coworkers but not job satisfaction, turnout intentions, or affective commitment. • *Perceived* ethnicity/race was not statistically significant in predicting any of the outcomes except satisfaction with coworkers. • The more individuals *perceived* themselves to be diverse in their personal attributes the less satisfied they were with their coworkers. • Personal attributes diversity predicted job dissatisfaction, greater job turnover intentions and a reduced affective commitment to the organization.
Cunningham and Sagas (2004)	Values	Job satisfaction Organizational turnover intention	United States basketball, track and football coaches, $N =$ 235 (37% response rate)	Race = 32% African American	Coaching staff workgroup	Perceived diversity	• Greater *perceived* values diversity predicted greater turnover intentions and job dissatisfaction. • Individuals that did not perceive a fit with the organization with regard to their values were more likely to leave.
Cunningham (2007)	Age Ethnicity/race Deep-level (personal values, personalities, attitudes toward the team)	Coworker satisfaction Turnover intentions	Assistant coaches of track and field teams in United States $N = 175$	Women = 25% Race = 76% Caucasian Average age = 36 years Average tenure = 5 years	Coaching staff workgroup	Perceived diversity	• *Perceived* age and ethnic/racial diversity were negatively correlated with coworker satisfaction but not greater turnover intentions. • *Perceived* deep–level diversity predicted greater dissatisfaction with coworkers and greater intentions to leave the organization.
Gonzalez (2001)	Values	Organizational commitment Intention to quit	Restaurant chain in the United States $N = 291$ (37 restaurants) (12% response	Women = 56% Race = 53% White Average age = 29 years	All employees from each restaurant	Perceived diversity	• When individuals *perceived* that their values were different from those of the organizations they were more likely to report lower organizational commitment.

Study	Diversity variables	Outcome variables	Sample population and size	Sample characteristics	Referent unit	Measure-ment approach	Findings
			rate), Average of 13 (range = 1-31) responses per workgroup responded.				• *Perceived* values diversity was positively correlated with intentions to quit.
Hobman, Bordia, and Gallois (2003)	Informational (education, profession, work experience) Visible (age, gender, ethnicity) Values (work ethic, work values, motivations)	Workgroup involvement	Public sector organization, *N* = 129	Women = 59% Average age = 39 years Average tenure = 6.5 years	Random sample of employees working in defined teams	Perceived diversity	• *Perceived* value diversity was negatively related to workgroup involvement whereas visible and informational diversity were not.
Jehn, Northcraft, and Heale (1999)	Work values	Job satisfaction Intent to remain Commitment to workgroup	Large household goods moving company, *N* = 485 (92 workgroups) (89% response rate)	Not provided	All employees in designated work groups Only units with 100% response rate were included in the study.	Perceived diversity	• Greater *perceived* work values diversity predicted job dissatisfaction, greater intentions to leave, and lower commitment.
Kirchmeyer (1995)	Generational (age, education, lifestyle) Cultural (ethnicity and religion) Gender	Organizational commitment Actual turnover	New graduates from two Canadian business schools beginning managerial jobs, *N* = 141 (61% response rate	Average age = 24 years	Manager's immediate workgroup	Perceived diversity	• Four periods of data collection. • Neither *perceived* generational nor cultural diversity predicted organizational commitment at T1 and T2 or turnover.

Study	Diversity variables	Outcome variables	Sample population and size	Sample characteristics	Referent unit	Measurement approach	Findings
Liao, Chuang, and Joshi (2008)	Age Deep–level (personality attributes, personal values, work attitudes, education and lifestyle)	Work withdrawal Helping behaviour Overall job attitude (i.e., job satisfaction and affective commitment)	Study 1: Apparel franchise in Taiwan, N = 271 (107 stores) (85% response rate) Study 2: Salon franchise in Taiwan, N = 443 (112 stores) (97% response rate)	Mainly female. Other demographics not clearly indicated.	All employees in current workgroup Each store average size = 3 employees and salon average size = 4 employees	Perceived diversity	• *Perceived* age diversity was not significantly related to work withdrawal, cooperative helping behaviour, and *actual* turnover but was for overall job attitude (i.e., job satisfaction and affective commitment). • *Perceived* deep–level diversity predicted all outcomes including overall job attitude, cooperative helping behaviour, work withdrawal and *actual* turnover. • In other words, the more diversity that existed in a workgroup with regard to deep–level attributes the less willing individuals were to engage in cooperative helping behaviour toward members of the workgroup and the greater the likelihood of voluntary job turnover.
Riordan and Holliday Wayne (2008)	Age Education Ethnicity/race	Workgroup identification Organizational commitment Openness to communication Turnover intentions	United States financial service organizations, N = 340 (42 workgroups) (90% response rate)	Women = 85% Race = 90% Caucasian Average age = 35 years Average tenure = 7 years Education = 30% college degree Position = 30% management	All employees from each workgroup	Perceived diversity	• Greater *perceived* age diversity predicted less identification with the workgroup and lower commitment to the organization. • *Perceived* educational diversity was a weak predictor of less identification with the workgroup and diminished communication. • Greater *perceived* ethnicity/race predicted less identification with the workgroup, diminished communication, lower commitment to the organization, and greater intentions to leave.
Williams (2007)	Age	Perspective taking (positive attributions and empathy)	Petrochemical plant in England, N = 208 (66% response rate)	Mostly men Average age = 39 years Average tenure = 1 year	All employees per shift teams, average size = 5 members	Perceived diversity	• No main effects of *perceived* age diversity for either positive attributions or empathy.

Note. In the studies presented here other attributes may have been examined but only those relevant to this study (i.e., age, education, ethnicity/race, and work values) are reported. Furthermore, only outcome variables related to the consequences of burnout and collegial relationships are reported.

APPENDIX B: QUESTIONNAIRE
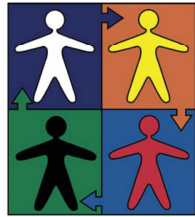
Understanding the Influence of Changing Demographics on the Healthcare Workforce

Thank you for agreeing to participate in this study. This survey is about the potential effect of changing workforce demographics on your work life. The survey includes questions about your work ethic and background, your views about your job and the people with whom you work closely, the similarities between you and your co-workers, and disagreements experienced on your nursing unit.

The survey will take about 20 to 30 minutes to complete and consists of 9 sections. Please complete this survey at a time that is most convenient for you.

Important: If you **work in more than one nursing unit** in this hospital, please **answer for the unit where you received the survey**. The unit name is listed on the address label of your study information package delivered to your unit.

Please DO NOT write your name anywhere on the survey or on the envelope.

All your answers will remain **confidential** and **anonymous**. NO ONE at work will ever see your answers. To safeguard the privacy of your answers, a stamped envelope is enclosed.

Please read through each item carefully before responding. It is important that you answer each question as thoughtfully and honestly as possible. There are no right or wrong answers, only your individual opinions. Your answers are important to this research project.

Please answer ALL of the questions.

Prizes

Prizes will be given!
Information about the **prizes** and instructions for returning the completed survey are on the last page.

Thank you for your participation!

Supported by

fraserhealth Better health. Best in health care.

253

Section A

This section consists of several statements about **YOUR** beliefs and attitudes about work.

You will notice that some of the statements are similar, but it is important that you answer **ALL** statements. As well, some of the statements may not seem applicable to your working setting. Once again, please answer **each one** to the best of your ability.

To **SELECT** your answer, please **CIRCLE the number** that best represents your belief or attitude.

An example is shown below.

Example — If you "*strongly agree*" with the statement that you expect work to be a meaningful and fulfilling part of your life, you would CIRCLE the number "4" (four).

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. I expect work to be a meaningful and fulfilling part of my life.	1	2	3	(4)

Start Here — Please read each statement carefully and decide if **YOU disagree or agree with each belief or attitude statement.**

CIRCLE the number that best represents your belief or attitude.

CIRLCE only **ONE** answer. There is no right or wrong answer.

	1 Strongly Disagree	2 Disagree	3 Agree	4 Strongly Agree
1. I expect work to be a meaningful and fulfilling part of my life.	1	2	3	4
2. When working, I have high expectations of receiving both intrinsic and extrinsic rewards.	1	2	3	4
3. Work provides a channel for expressing myself and my opinions.	1	2	3	4
4. I need to be listened to by my superiors; work should be a two-way communication process.	1	2	3	4
5. Work is worth doing only when it makes a meaningful contribution to society.	1	2	3	4
6. I would like to work less in order to have more free time for personal interests.	1	2	3	4
7. My input should be considered before decisions are made that affect my work situation.	1	2	3	4
8. I desire work that provides opportunities for personal growth and allows me to "feel good inside."	1	2	3	4
9. I want to have control over my work assignments and how work tasks are done.	1	2	3	4
10. Work has to be meaningful for me to do it well.	1	2	3	4

Page 1 of 15

254

	1 Strongly Disagree	2 Disagree	3 Agree	4 Strongly Agree
11. It is important to me that my job provides opportunities to strengthen my abilities and talents.	1	2	3	4
12. A worker should have some direct "say" in nursing unit operations.	1	2	3	4
13. Being held in high regard by others is important to me.	1	2	3	4
14. I am very concerned that I receive personal satisfaction from my work.	1	2	3	4
15. Responsibility for high-quality patient care should be placed upon workers and not solely on managers.	1	2	3	4
16. Work provides many opportunities for "personal growth" experiences.	1	2	3	4
17. I enjoy work assignments that are challenging and require extensive use of thought processes.	1	2	3	4
18. Only when it earns me self-respect is my work worthwhile.	1	2	3	4
19. Work assignments should provide sufficient rewards for me; in other words, I would not accept just any job unless I have to.	1	2	3	4
20. Work is beneficial in helping me to become a "whole" person.	1	2	3	4
21. Work has value only because it is strictly a means to an end.	1	2	3	4
22. I want more say over what will be assigned to me and how it is to be completed.	1	2	3	4
23. I must be given a high degree of freedom to accomplish work in the best way possible.	1	2	3	4
24. Work contributes to my understanding and development of my character and capabilities.	1	2	3	4
25. Work should provide me with a high degree of self-satisfaction or self-fulfilment.	1	2	3	4
26. I accept total responsibility for the successful completion of my work.	1	2	3	4
27. I wish I could find interesting work.	1	2	3	4
28. I want to be informed about the activities and plans of my nursing unit.	1	2	3	4
29. I seek work experiences that help me expand and use my potential to the fullest extent possible.	1	2	3	4
30. I would like variety in my work.	1	2	3	4
31. Work provides individuals with an opportunity to "grow" and realize their full potential.	1	2	3	4
32. I seek various emotional and psychological rewards from working in addition to my pay cheque.	1	2	3	4
33. A person can effectively integrate work and other interests.	1	2	3	4
34. Work should be an extension of one's lifestyle and not merely a means to obtain subsistence.	1	2	3	4
35. A need exists for more openness and better communication in work relationships.	1	2	3	4

Your answers are **anonymous**.
No one from your work will ever see your answers to these questions.

Section B

The purpose of this section is to find out how people in the human services or helping professions **view their jobs and the people with whom they work closely**.

An example is shown below.

Example

If you NEVER feel emotionally drained at work, you would CIRCLE the number "1" (one).

If you RARELY feel emotionally drained at work (a few times a year or less), you would CIRCLE the number "2" (two).

If your feelings of being emotionally drained at work are FAIRLY FREQUENT (a few times a week, but not daily) you would CIRCLE the "6" (six).

HOW OFTEN:	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day
1. I feel emotionally drained from my work.	1	2	3	4	5	6	7

Start Here

Below there are several statements referring to job-related feelings. Please read each statement carefully and decide if **YOU** ever feel this way about **YOUR JOB**.

Please CIRCLE the number that best describes **how frequently** you experience these job-related feelings.
- If you have NEVER had this feeling, CIRCLE the "1" (one) to the right of each statement.
- If you have had this feeling, indicate **HOW OFTEN** by CIRCLING the number (from 2 to 7) that **best describes how frequently you feel that way**.

Please CIRCLE only **ONE** response for each statement.

HOW OFTEN:	1 Never	2 A few times a year or less	3 Once a month or less	4 A few times a month	5 Once a week	6 A few times a week	7 Every day
1. Drained	1	2	3	4	5	6	7
2. Used up	1	2	3	4	5	6	7
3. Fatigued	1	2	3	4	5	6	7
4. Understand patients	1	2	3	4	5	6	7
5. I feel I treat some patients as if they were impersonal objects.[1]	1	2	3	4	5	6	7
6. Work strain	1	2	3	4	5	6	7

256

HOW OFTEN:	1 Never	2 A few times a year or less	3 Once a month or less	4 A few times a month	5 Once a week	6 A few times a week	7 Every day
7. Deal with problems	1	2	3	4	5	6	7
8. Less interested	1	2	3	4	5	6	7
9. Less enthusiastic	1	2	3	4	5	6	7
10. Burned out	1	2	3	4	5	6	7
11. I feel I'm positively influencing other people's lives through my work.	1	2	3	4	5	6	7
12. Callous	1	2	3	4	5	6	7
13. Hardening	1	2	3	4	5	6	7
14. Energetic	1	2	3	4	5	6	7
15. Frustrated	1	2	3	4	5	6	7
16. Work hard	1	2	3	4	5	6	7
17. Not care	1	2	3	4	5	6	7
18. People stressful	1	2	3	4	5	6	7
19. Create atmosphere	1	2	3	4	5	6	7
20. Exhilarated	1	2	3	4	5	6	7
21. Accomplish	1	2	3	4	5	6	7
22. Not be bothered	1	2	3	4	5	6	7
23. Cynical	1	2	3	4	5	6	7
24. I doubt the significance of my work.	1	2	3	4	5	6	7
25. I feel like I'm at the end of my rope.	1	2	3	4	5	6	7
26. Deal calmly	1	2	3	4	5	6	7
27. Patients blame	1	2	3	4	5	6	7

Please ensure that you have answered **ALL** of the questions.

If YOU have NEVER had these feelings, CIRCLE "1" (one).

Section C

The following statements ask you to consider personal **comparisons between YOU and YOUR co-workers** on this nursing unit.

For each question, please identify how similar **YOU** are to other nurses (e.g., RNs and LPNs) that **regularly** work on **this** nursing unit.

Important: If you **work in more than one nursing unit** at this hospital, **answer for the unit where you received the survey**. **Note:** The unit name is listed on the address label of your study information package delivered to your unit.

Please **CIRCLE** the number that best corresponds to your answer.

	1 Not at all similar	2	3	4	5	6 Very similar
1. In my nursing unit, the other nurses are similar to me in terms of their **age**.	1	2	3	4	5	6
2. In my nursing unit, the other nurses are similar to me in terms of their **work ethic** (values).	1	2	3	4	5	6
3. In my nursing unit, the other nurses are similar to me in terms of their **type of registered or licensed health care designation** (e.g., RN or LPN).	1	2	3	4	5	6
4. In my nursing unit, the other nurses are similar to me in terms of their **length of service as a nurse**.	1	2	3	4	5	6
5. In my nursing unit, the other nurses are similar to me in terms of their **educational background in nursing** (e.g., diploma or degree).	1	2	3	4	5	6
6. In my nursing unit, the other nurses are similar to me in terms of the **principles that guide their work**.	1	2	3	4	5	6
7. In my nursing unit, the other nurses are similar to me in terms of their **length of service in this hospital**.	1	2	3	4	5	6
8. In my nursing unit, the other nurses are similar to me in terms of their **attitudes about work**.	1	2	3	4	5	6
9. In my nursing unit, the other nurses are similar to me in terms of their **ethnicity or culture**.	1	2	3	4	5	6
10. In my nursing unit, the other nurses are similar to me in terms of their **employment status** (i.e., full-time, part-time, or casual).	1	2	3	4	5	6
11. In my nursing unit, the other nurses are similar to me in terms of their **length of service on this unit**.	1	2	3	4	5	6

	1 Not at all similar	2	3	4	5	6 Very similar
12. In my nursing unit, the other members are similar to me in terms of their **gender**.	1	2	3	4	5	6
13. In my nursing unit, the other nurses are similar to me in terms of their **beliefs about work**.	1	2	3	4	5	6
14. In my nursing unit, the other members are similar to me in terms of their **post-basic education/credential** (e.g., specialty certification or CNA certification).	1	2	3	4	5	6

You have completed 50% of the survey. Please continue.

Section D

We would like to know if **YOU** have had any medical concerns, and how **your health** has been, in general, **during the past few weeks**.

Please answer **ALL** the following questions by **CIRCLING** the number which you think most nearly applies to **you**.

Remember that we want to know about **present and recent concerns**, not those you had in the past. It is important that you to answer **ALL** of the questions.

HAVE YOU RECENTLY:

1.	Concentrate	Better than usual 1	Same as usual 2	Less than usual 3	Much less than usual 4
2.	Lost sleep	Not at all 1	No more than usual 2	Rather more than usual 3	Much more than usual 4
3.	Useful	More so than usual 1	Same as Usual 2	Less useful than usual 3	Much less useful 4
4.	Capable of decisions	More so than usual 1	Same as usual 2	Less so than usual 3	Much less capable 4
5.	Strain	Not at all 1	No more than usual 2	Rather more than usual 3	Much more than usual 4
6.	Overcome difficulties	Not at all 1	No more than usual 2	Rather more than usual 3	Much more than usual 4
7.	Enjoy activities	More so than usual 1	Same as usual 2	Less so than usual 3	Much less than usual 4
8.	Face problems	More so than usual 1	Same as usual 2	Less able than usual 3	Much less Able 4
9.	Unhappy and depressed	Not at all 1	No more than usual 2	Rather more than usual 3	Much more than usual 4
10.	Losing self-confidence	Not at all 1	No more than usual 2	Rather more than usual 3	Much more than usual 4
11.	Worthless	Not at all 1	No more than usual 2	Rather more than usual 3	Much more than usual 4
12.	Happy	More so than usual 1	About same as usual 2	Less so than usual 3	Much less than usual 4

Section E

This next section of the survey asks you some general questions about **disagreements (conflict) AMONG MEMBERS on your nursing unit**.

MEMBERS of your nursing unit refer to all nurses (e.g., RNs and LPNs) that **regularly** work on this unit.

Important: If you **work in more than one nursing unit at this hospital, answer for the unit where you received the survey**. **Note:** The unit name is listed on the address label of your study information package delivered to your unit.

Please **CIRCLE** the number that best describes the **AMOUNT** or **FREQUENCY** of disagreements **AMONG MEMBERS i**n your nursing unit.

		1 None	2	3	4	5 A lot
1.	How much **friction** is there AMONG MEMBERS in your nursing unit?	1	2	3	4	5
2.	How often do MEMBERS in your nursing unit disagree about the **work being done**?	1	2	3	4	5
3.	How often do MEMBERS in your nursing unit disagree about **who should do what**?	1	2	3	4	5
4.	How much are **personality clashes** evident AMONG MEMBERS in your nursing unit?	1	2	3	4	5
5.	How frequently are there conflicts about **work ideas** AMONG MEMBERS in your nursing unit?	1	2	3	4	5
6.	How frequently do MEMBERS in your nursing unit disagree about **the way to complete a task**?	1	2	3	4	5
7.	How much **tension** is there AMONG MEMBERS in your nursing unit?	1	2	3	4	5
8.	How much conflict about **the work you do** is there AMONG MEMBERS in your nursing unit?	1	2	3	4	5
9.	To what extent are there **differences of opinions** AMONG MEMBERS in your nursing unit?	1	2	3	4	5
10.	How much **rivalry** is there AMONG MEMBERS in your nursing unit?	1	2	3	4	5
11.	How much conflict is there about **delegation of tasks** AMONG MEMBERS in your nursing unit?	1	2	3	4	5
12.	How much **anger** is there AMONG MEMBERS in your nursing unit?	1	2	3	4	5

Section F

Please tell us about yourself. This section asks you general questions about your job as a nurse and background information.

Please **CIRCLE** the number that corresponds to your answer or, where indicated, **FILL IN** the blanks.

1. What **type** of registered or licensed health care designation do you hold?

CIRCLE ALL THAT APPLY

Registered Nurse (RN) 1
Licensed Practical Nurse (LPN) 2
Registered Psychiatric Nurse (RPN) 3
Nurse Practitioner (NP) 4
Other (PLEASE SPECIFY)_____5

2. How long have you **worked as a nurse**? (SPECIFY EXACT YEARS **OR** MONTHS)

| | Years   **or** | | Months

3. What is your **job title** on this nursing unit? (Note: The unit where you received this survey)

CIRCLE ONE RESPONSE

Staff Nurse – Registered Nurse (RN) 1
Staff Nurse – Registered Psychiatric Nurse (RPN) 2
Staff Nurse – Licensed Practical Nurse (LPN) 3
Clinical Resource Nurse 4
Clinical Nurse Educator/Instructor..5
Clinical Nurse Specialist...6
Nurse Practitioner 7
Coordinator/Patient Care Coordinator 8
Health Services Manager/Assistant Manager/Supervisor 9
Director/Assistant/Associate 10
Other (PLEASE SPECIFY) _____11

4. How long have you worked as a nurse **on this unit**? (SPECIFY EXACT YEARS **OR** MONTHS)

| | Years   **or** | | Months

5. How long have your worked as a nurse **at this hospital**? (SPECIFY EXACT YEARS **OR** MONTHS)

| | Years   **or** | | Months

The next question is based on these **definitions of employment status**.

Regular Full-time refers to a regular position in which the employment schedule guarantees at least 35 hours of work per week. Full-time might be 36 hours or 37.5 hours per week, depending upon a collective agreement.	**Temporary Full-time** or **Part-time** refers to a temporary position in which the employment schedule guarantees a regular number of hours of work per period for a specific time period (or until return of the incumbent). This usually applies to employees relieving other employees who are on a long-term leave or maternity leave or employees working in term positions (e.g., time defined project or summer relief position).
Regular Part-time refers to a regular position in which the employment schedule guarantees a fixed number of hours of work per pay period, but the hours are less than full-time.	**Casual** refers to employees whose employment schedule does not guarantee a fixed number of hours of work per pay period and who are usually pre-booked or called in to relieve employees on short-term vacation, or sick leave, or to assist with workload demands.

6. What is your current **employment status** on this unit? (Note: The unit where you received this survey)

CIRCLE ONE RESPONSE

Regular full-time 1

Regular part-time..2

Temporary full-time or part-time 3

Casual 4

Other (PLEASE SPECIFY)_____5

7. If you **currently work casual or part-time**, please indicate how many hours on average per week you work on **this unit**. (Note: The unit where you received this survey)

Average hours of work per week on this unit = _____

Not applicable...2

8. If you **currently work casual or part-time**, do you work on any **other units in this hospital**?

CIRCLE ONE RESPONSE

No 1

Yes 2

IF YES, SPECIFY NAME OF UNIT(s)_____3

Not applicable...4

You have completed 75% of the survey. Please continue.

Section G

This section of the survey asks you some questions about **disagreements (conflict) YOU may have with YOUR co-workers in this nursing unit**.

CO-WORKERS refer to **nurses** (i.e., RNs and LPNs) with whom you have contact with **in this unit**.

Important: If you **work in more than one nursing unit** at this hospital, **answer for the unit where you received the survey**. **Note:** The unit name is listed on the address label of your study information package delivered to your unit.

Please **CIRCLE** the number that best describes the **AMOUNT** or **FREQUENCY** of disagreements **YOU may have with YOUR co-workers** in your nursing unit.

		1 None	2	3	4	5 A lot
1.	How much **friction** is there between YOU and YOUR co-workers?	1	2	3	4	5
2.	To what degree do YOU and YOUR co-workers have **diverging opinions** about the work being done?	1	2	3	4	5
3.	How much conflict about **work ideas** exists between YOU and YOUR co-workers?	1	2	3	4	5
4.	How much are **personality clashes** evident between YOU and YOUR co-workers?	1	2	3	4	5
5.	How often do YOU and YOUR co-workers disagree about **what things should be done**?	1	2	3	4	5
6.	How often do YOU disagree with YOUR co-workers about **who should do what**?	1	2	3	4	5
7.	How much **tension** is there between YOU and YOUR co-workers?	1	2	3	4	5
8.	How frequently do YOU disagree with YOUR co-workers about **the way to complete a task**?	1	2	3	4	5
9.	To what extent do YOU and YOUR co-workers have **disagreements about work**?	1	2	3	4	5
10.	How often do YOU **get angry** with YOUR co-workers?	1	2	3	4	5
11.	How much conflict do YOU have with YOUR co-workers about **delegation of tasks** on your nursing unit?	1	2	3	4	5

Section H

This section asks you general questions about you and your background.

Please **CIRCLE** the number that corresponds to your answer, or where indicated, **FILL IN** the blanks.

1. What was your **first educational qualification** (initial program completed) **in nursing**?

CIRCLE ONE RESPONSE

Licensed Practical Nurse Diploma...1
Registered Psychiatric Nurse Diploma..2
Registered Nurse Diploma (**hospital program**)...3
Registered Nurse Diploma (**community college program**)..4
Baccalaureate Program in Nursing 5
Other (PLEASE SPECIFY) _____6

2. What **year** did you complete your **first/initial education program in nursing**?

19 [ ]   **or**   20 [ ]

3. In **what country** did you complete your **first/initial education program in nursing**?

CIRCLE ONE RESPONSE

Canada..1
Other 2
    IF OTHER, PLEASE SPECIFY _____3

4. If you answered "OTHER" to Question 3, **how long have you lived in Canada**? (PLEASE SPECIFY EXACT NUMBER OF YEARS OR MONTHS)

Number of **years** lived in Canada = [ ]   **or**   Number of **months** lived in Canada = [ ]

5. What is your **highest** educational qualification **in nursing**?

CIRCLE ONE RESPONSE

Licensed Practical Nurse Diploma...1
Registered Psychiatric Nurse Diploma..2
Registered Nurse Diploma 3
Bachelor of Nursing..4
Master of Nursing..5
PhD (Nursing)...6
Other (PLEASE SPECIFY) _____7

6. What is the **highest level** of **non-nursing education** that you have received?

CIRCLE ONE RESPONSE

Bachelor degree 1

Master degree 2

PhD 3

Other (PLEASE SPECIFY) _____4

Not applicable 5

7. If you are a Registered Nurse, have your received **post-basic specialty education and/or certification**?

CIRCLE ALL THAT APPLY

No 1

Yes, from my employer/health authority 2

Yes, from a college/university 3

Yes, from the Canadian Nurses Association specialty certification program...................4

Not applicable..5

8. If you answered "**YES**" to Question 7, please **specify your area of specialty**.

My area(s) of specialty is/are

9. In **what year** were you **born**? (Note: Used to calculate participants' ages)

My year of birth is 19

10. What is your **gender**?

Male...1

Female 2

Other (PLEASE SPECIFY)_____3

11. What **language** do you speak **most often** at home?

CIRCLE ALL THAT APPLY

English 1

French..2

Mandarin 3

Cantonese..4

Taiwanese 5

Punjabi...6

Hindi 7

Tagalog (Filipino) 8

Other (PLEASE SPECIFY)_____9

12. To which **ethnic or cultural group(s)** did your **ancestors** belong? (PLEASE SPECIFY AS MANY GROUPS AS APPLICABLE)

For example, Canadian, French, English, Chinese, Italian, German, Scottish, Irish, Cree, Micmac, Métis, Inuit (Eskimo), East Indian, Ukrainian, Dutch, Polish, Portuguese, Filipino, Jewish, Greek, Jamaican, Vietnamese, Lebanese, Chilean, and Somali.

_____

_____

_____

_____

_____

13. Are you . . .

CIRCLE ALL THAT APPLY

White 1

Chinese 2

South Asian (e.g., East Indian, Pakistani, Sri Lankan, etc) 3

Black..4

Filipino 5

Latin American...6

Southeast Asian (e.g., Cambodian, Indonesian, Laotian, Vietnamese, etc) ...7

Arab 8

West Asian (e.g., Afghan, Iranian, etc.)...9

Japanese 10

Korean 11

Other (PLEASE SPECIFY)_____12

Section I

This section is divided into two parts.

For each question please **CIRCLE** the number that best represents **your intentions**.

Important: If you **work in more than one nursing unit** at this hospital, **answer for the unit where you received the survey**. **Note:** The unit name is listed on the address label of your study information package delivered to your unit.

Part 1: The following questions about **your employment and career intentions in nursing**.

	1 Never	2 A few times	3 About once a month	4 Two or three times a month	5 About once a week	6 More than once a week	7 Every day
1. How often **in the past year** have you thought about **changing your current position** on this unit **to work on another nursing unit in this hospital**?	1	2	3	4	5	6	7
2. How often **in the past year** have you thought about **quitting your current nursing job at this hospital**?	1	2	3	4	5	6	7
3. How often **in the past year** have you thought about **permanently leaving the nursing profession**?	1	2	3	4	5	6	7

Part 2: The following questions ask about the **likelihood of you looking for another job**.

	1 Not likely at all	2 Slightly possible	3 Quite possible	4 Almost certain
1. How likely is it that you will **actively** look for another nursing job **in this hospital in the next year**?	1	2	3	4
2. How likely is it that you will **actively** look for another nursing job **in another hospital in the next year**?	1	2	3	4
3. How likely is it that you will **actively** look for **employment outside the nursing profession in the next year**?	1	2	3	4

Your Comments

If you would like to comment on the survey, the changing workforce demographics, disagreements you may have with your co-workers, or other topics, please do so in the space below.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

This is the end of the survey ☺

The following page provides **instructions** on how to return the completed survey, how to receive your gift certificate, and how to participate in the **prize draws** available to you.

If you are interested in receiving a collective summary of the results, please complete the entry draw form.

Thank you very much for taking the time to complete and return the survey!

Returning the Survey

Place your completed survey in the larger envelope addressed to Angela Wolff at the UBC School of Nursing. Return postage has been provided for your convenience. Place your envelope containing the survey into any Canada Post mailbox or the outgoing mailbox on your nursing unit.

If you are interested in receiving a summary of the results of this study, please let us know on your entry draw form. Please note, the study results may not be available until 2008.

☑ Yes, I wish to receive a gift certificate and enter my name for the draw prizes

We will be conducting draws at each hospital site as well as a grand prize draw for all participants.

Please complete your entry draw form to receive your gift certificate and an opportunity to enter the draws. The grand prize will be the winner's nursing registration fee for 2008. The nursing unit, in each workplace, with the most nurses participating will also receive a group gift.

Instructions
1. Complete your contact information on the entry form enclosed in the survey package (yellow paper).
2. Place the **completed entry form in the smaller envelope** and seal this small envelope.
3. When you return your entry form, your name will not be connected to your answers in any way.
4. To ensure your confidentiality, there are **two options** for **returning** your entry form envelope:

   Option A: Place the sealed entry form in the larger envelope and return it by mail.

   Option B: Place the entry form in the draw box conveniently located on your nursing unit. The drop box will be labelled with the study name "Diversity at Work" and will be placed in a convenient location on your nursing unit (e.g., staff room).

Please be sure to include your full contact information.
All winners will be notified directly.
Once again, thank you for your valuable participation!

☑ No, I do not wish to receive a gift certificate or enter my name for the draw prizes

If you do not wish to participate in the prize draw, please mail your completed survey in the larger envelope and recycle the entry form and smaller envelope.

Please accept my sincere thanks for taking the time to participate. I truly appreciate your involvement and want you to know that the information you have provided will assist myself, and others, in understanding the consequences of changing workforce demographics on nurses' work lives.

APPENDIX C: UBC BEHAVIOURAL RESEARCH ETHICS BOARD CERTIFICATE OF APPROVAL

UBC The University of British Columbia
Office of Research Services
Behavioural Research Ethics Board
Suite 102, 6190 Agronomy Road, Vancouver, B.C. V6T 1Z3

CERTIFICATE OF APPROVAL- MINIMAL RISK RENEWAL

PRINCIPAL INVESTIGATOR:	DEPARTMENT:	UBC BREB NUMBER:
Pamela A. Ratner	UBC/Applied Science/Nursing	H06-03615

INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT:	
Institution	Site
N/A	N/A

Other locations where the research will be conducted:
Fraser Health Authority (Burnaby Hospital, Royal Columbia Hospital, MSA Hospital, Langley Memorial Hospital, Peace Arch Hospital, Surrey Memorial Hospital)

CO-INVESTIGATOR(S):
Sandra Robinson
John Oliffe

SPONSORING AGENCIES:
Sigma Theta Tau International
UBC Internal Grant - "Examining Diversity within the Nursing Workforce"

PROJECT TITLE:
Understanding the Influence of Changing Demographics on the Healthcare Workforce

EXPIRY DATE OF THIS APPROVAL: November 16, 2008

APPROVAL DATE: November 16, 2007

The Annual Renewal for Study have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.

Approval is issued on behalf of the Behavioural Research Ethics Board

271

APPENDIX D: FRASER HEALTH AUTHORITY RESEARCH ETHICS BOARD CERTIFICATE OF APPROVAL

fraserhealth

Better health. Best in health care.

Fraser Health
Research Ethics Board
FHA, Research Administration & Development
#300, 10334 152A Street, Surrey, BC V3R 7P8
Phone: 604.587.4436 Fax: 604.587.4665

CERTIFICATE OF FHREB INITIAL APPROVAL

Official Notification - FHREB Number *(to be used on all future correspondence)*: **2006-099**	
Principal Investigator: Dr. Pamela Ratner	**Hospital/Facility & Department:** Professor, School of Nursing, UBC

Institution(s) or Geographical Areas where research will be carried out:
Burnaby Hospital, Royal Columbian Hospital, MSA Hospital, Langley Memorial Hospital, Peace Arch Hospital, Surrey Memorial Hospital

Co-Investigator(s):
Angela Wolff, John Oliffe, Sandra Robertson

Funding Agencies and/or Corporate Sponsor:
Katherine McMillan Director's Discretionary Fund

Title: Understanding the Influence of Changing Demographics on the Healthcare Workforce

Date of Initial REB Approval: 2006 December 20	**Date of Expiry of Approval:** 2007 December 20
Term, if less than ONE year:	**Type of Approval:** ☒ Expedited ☐ Full FHREB Review

Documents Included in this Approval:
- Study Proposal - Version 2 2006 November 25
- Letter of Initial Contact – Version 2 2006 December 15
- Cover Letter for Questionnaire – Version 2 2006 December 15
- Letter with Replacement Questionnaire – Version 1 2006 November 7
- Postcard Reminder – Version 1 dated 2006 November 7
- Questionnaire – Version 1 2006 November 7
- Recruitment Poster –Version 1 2006 November 7

CERTIFICATION:
With respect to clinical trials:
1. The membership of the Fraser Health Research Ethics Board complies with the membership requirements for research ethics boards as defined in Division 5 of the Food and Drug Regulations and the Tri-Council Policy Statement.
2. The Fraser Health Research Ethics Board carries out its functions in a manner consistent with Good Clinical Practices.
3. The Fraser Health Research Ethics Board has reviewed and approved the clinical trial protocol and the informed consent form for the trial which is to be conducted by a qualified investigator named at the specified clinical trial site. This approval of the documentation listed above and the views of the Fraser Health Research Ethics Board have been documented in writing.

With respect to expedited review:
A co-chair of the FHREB has reviewed and approved the documentation listed above for the forenamed research study in accordance with the FHREB Policy on "Ethical Conduct of Research and Other Studies Involving Human Subject" and the Tri-council Policy Statement: Ethical Conduct for Research Involving Human".

With respect to full board review:
Full FHREB review and approval of the documentation listed above was completed for non-expedited review in accordance with the FHREB Policy on "Ethical Conduct of Research and Other Studies Involving Human Subjects" and the Tri-council Policy Statement: Ethical Conduct for Research Involving Human".

The FHREB approval for this study expires ONE year from the approval date of this certificate. Researchers must submit a Request for Annual Renewal for ongoing research studies prior to the expiry date in order to receive annual re-approval.

2006 December 20

_____   _____

APPROVAL OF THE FHREB BY ONE OF: DATE OF SIGNATURE
DR A BELZBERG or DR MR FOULKES
CO-CHAIRS, FHREB

APPENDIX E: INTER-ITEM CORRELATION MATRICES

Table E.1   Polychoric Correlation Matrix for the 16-item Contemporary Work Values Scale

	A1	A4	A8	A11	A14	A16	A17	A20	A24	A25	A28	A29	A30	A31	A32	A34
A1WE																
A4WE	0.35															
A8WE	0.39	0.51														
A11WE	0.44	0.46	0.58													
A14WE	0.38	0.38	0.49	0.44												
A16WE	0.45	0.32	0.43	0.50	0.36											
A17WE	0.42	0.38	0.38	0.54	0.32	0.49										
A20WE	0.43	0.31	0.40	0.46	0.39	0.40	0.35									
A24WE	0.35	0.36	0.44	0.51	0.40	0.42	0.41	0.60								
A25WE	0.42	0.41	0.51	0.47	0.49	0.40	0.41	0.55	0.64							
A28WE	0.25	0.41	0.49	0.45	0.36	0.30	0.39	0.28	0.43	0.42						
A29WE	0.41	0.40	0.39	0.53	0.34	0.45	0.54	0.39	0.46	0.45	0.53					
A30WE	0.24	0.31	0.37	0.44	0.31	0.31	0.44	0.35	0.43	0.38	0.45	0.58				
A31WE	0.49	0.31	0.45	0.58	0.36	0.60	0.49	0.52	0.52	0.49	0.42	0.56	0.52			
A32WE	0.36	0.27	0.40	0.43	0.39	0.40	0.35	0.54	0.56	0.48	0.31	0.43	0.39	0.50		
A34WE	0.37	0.27	0.38	0.32	0.24	0.33	0.30	0.42	0.45	0.44	0.29	0.35	0.27	0.42	0.48	

Note. $N = 603$.

Table E.2   Polychoric Correlation Matrix for the *Perceived* Work Values Diversity Items

	C2SWE	C6SPRI	C8SATT	C13SBEL
C2SWE				
C6SPRI	0.69			
C8SATT	0.68	0.66		
C13SBEL	0.64	0.69	0.69	

Note. $N = 602$.

Table E.3   Polychoric Correlation Matrix for the Intragroup Conflict Items

	E1	E4	E10	E7	E12	E2	E5	E8	E9	E3	E6	E11
E1GFRIC												
E4GPERS	0.78											
E10GRIV	0.69	0.70										
E7GTENS	0.77	0.76	0.76									
E12GANGR	0.61	0.65	0.69	0.72								
E2GWRK	0.71	0.69	0.62	0.73	0.61							
E5GIDEA	0.71	0.76	0.68	0.75	0.63	0.73						
E8GWRKDO	0.56	0.58	0.59	0.63	0.53	0.57	0.59					
E9GOPIN	0.63	0.68	0.66	0.73	0.63	0.67	0.70	0.63				
E3GWHO	0.66	0.67	0.62	0.66	0.56	0.76	0.68	0.55	0.69			
E6GTASK	0.61	0.70	0.64	0.67	0.64	0.70	0.74	0.63	0.70	0.66		
E11GDELG	0.64	0.65	0.66	0.69	0.65	0.68	0.68	0.62	0.70	0.76	0.66	

Note. $N = 602$.

Table E.4   Polychoric Correlation Matrix for the Individual Conflict Items

	G1	G4	G7	G10	G2	G3	G5	G9	G6	G8	G11
G1IFRIC											
G4IPERS	0.77										
G7ITENS	0.88	0.79									
G10IANGR	0.56	0.56	0.65								
G2IOPIN	0.64	0.56	0.65	0.49							
G3IIDEA	0.72	0.66	0.73	0.53	0.69						
G5IWRKDO	0.68	0.69	0.76	0.57	0.70	0.77					
G9IWRK	0.71	0.68	0.77	0.62	0.69	0.74	0.80				
G6IWHO	0.66	0.61	0.71	0.57	0.59	0.68	0.79	0.69			
G8ITASK	0.60	0.57	0.65	0.50	0.59	0.68	0.73	0.80	0.67		
G11IDELG	0.64	0.61	0.72	0.61	0.60	0.65	0.74	0.71	0.77	0.66	

Note. $N = 602$.

Table E.5   Polychoric Correlation Matrix for the Maslach Burnout Inventory Items

	B1	B2	B3	B6	B10	B15	B16	B18	B25	B5	B12	B13	B17	B27	B4	B7	B11	B14	B19	B20	B21	B26	B8	B9	B22	B23	B24
B1 EE																											
B2 EE	0.72																										
B3 EE	0.65	0.75																									
B6 EE	0.43	0.40	0.42																								
B10 EE	0.67	0.66	0.71	0.43																							
B15 EE	0.56	0.53	0.54	0.43	0.59																						
B16 EE	0.47	0.45	0.45	0.25	0.53	0.61																					
B18 EE	0.36	0.32	0.40	0.64	0.46	0.43	0.38																				
B25 EE	0.57	0.53	0.57	0.48	0.68	0.66	0.49	0.50																			
B5 DP	0.34	0.28	0.36	0.46	0.35	0.38	0.23	0.38	0.41																		
B12 DP	0.37	0.36	0.37	0.46	0.45	0.39	0.31	0.45	0.51	0.55																	
B13 DP	0.48	0.47	0.44	0.40	0.58	0.46	0.38	0.50	0.51	0.49	0.71																
B17 DP	0.24	0.22	0.31	0.47	0.28	0.35	0.17	0.44	0.42	0.58	0.53	0.42															
B27 DP	0.29	0.30	0.33	0.27	0.35	0.37	0.25	0.32	0.37	0.39	0.39	0.40	0.42														
B4 PA	0.08	0.08	0.06	-0.05	-0.02	0.01	0.06	-0.08	-0.07	-0.14	-0.16	-0.12	-0.17	0.02													
B7 PA	-0.02	-0.04	-0.08	-0.24	-0.11	-0.05	0.04	-0.30	-0.24	-0.33	-0.21	-0.21	-0.31	-0.22	0.34												
B11 PA	0.00	-0.01	-0.02	-0.14	-0.11	0.00	0.01	-0.16	-0.07	-0.12	-0.14	-0.11	-0.18	-0.07	0.19	0.36											
B14 PA	-0.31	-0.37	-0.44	-0.26	-0.42	-0.39	-0.27	-0.25	-0.41	-0.26	-0.28	-0.27	-0.25	-0.20	0.09	0.24	0.29										
B19 PA	-0.11	-0.09	-0.18	-0.22	-0.23	-0.14	-0.05	-0.32	-0.26	-0.24	-0.27	-0.22	-0.27	-0.25	0.37	0.48	0.34	0.32									
B20 PA	-0.06	-0.07	-0.11	-0.08	-0.13	-0.10	-0.11	-0.18	-0.10	-0.07	-0.15	-0.12	-0.15	-0.11	0.15	0.15	0.30	0.31	0.40								
B21 PA	-0.09	-0.10	-0.21	-0.21	-0.23	-0.18	-0.15	-0.23	-0.25	-0.20	-0.21	-0.18	-0.37	-0.13	0.26	0.33	0.42	0.39	0.44	0.51							
B26 PA	-0.14	-0.14	-0.22	-0.23	-0.21	-0.09	-0.07	-0.34	-0.27	-0.25	-0.26	-0.29	-0.28	-0.10	0.22	0.38	0.27	0.26	0.44	0.12	0.33						
B8 CY	0.48	0.48	0.53	0.50	0.65	0.57	0.39	0.44	0.57	0.46	0.51	0.53	0.47	0.34	-0.06	-0.17	-0.14	-0.43	-0.19	-0.20	-0.30	-0.17					
B9 CY	0.48	0.48	0.59	0.49	0.66	0.63	0.41	0.47	0.60	0.46	0.50	0.54	0.48	0.34	-0.01	-0.19	-0.11	-0.48	-0.17	-0.17	-0.30	-0.17	0.90				
B22 CY	0.21	0.29	0.35	0.42	0.35	0.25	0.25	0.40	0.38	0.32	0.34	0.32	0.39	0.21	-0.04	-0.10	-0.13	-0.23	-0.12	-0.14	-0.20	-0.18	0.45	0.43			
B23 CY	0.41	0.37	0.44	0.41	0.50	0.47	0.37	0.43	0.56	0.39	0.56	0.54	0.42	0.40	-0.05	-0.14	-0.23	-0.27	-0.20	-0.15	-0.33	-0.20	0.50	0.50	0.51		
B24 CY	0.40	0.36	0.44	0.45	0.49	0.48	0.42	0.48	0.62	0.39	0.56	0.53	0.49	0.38	-0.16	-0.24	-0.26	-0.33	-0.24	-0.11	-0.38	-0.23	0.50	0.55	0.46	0.75	

Note. N = 603.

APPENDIX F: ADDITIONAL FACTOR ANALYSES FOR THE INDIVIDUAL CONFLICT SCALE

To examine the measurement model of the *Individual Conflict Scale*, additional analyses were conducted before determination of a final structure.

Exploratory Factor Analyses with All Indicators Included

Several exploratory factor analyses (EFA) were conducted using geomin oblique rotation with WLSMV estimation (default for the M*plus* software). The fit indices and factor loadings for one, two and three factor models, with all indicators included, were as follows ($N = 602$):

- The fit indices for the one-factor solution were: $\chi^2_{(27)} = 288.69$, p < 0.001, CFI = 0.96, TLI = 0.99, SRMR = 0.04, and RMSEA = 0.13. The factor loadings ranged from 0.68 to 0.92.

- The fit indices for the two-factor solution were: $\chi^2_{(23)} = 132.19$, p < 0.001, CFI = 0.98, TLI = 0.99, SRMR = 0.03, and RMSEA = 0.09. As expected, the three relationship items loaded distinctly on the first factor (relationship conflict); however, the G10IANGR item ("*How often do you get angry with your co-workers*?") loaded onto both factors.[29] The 7 task and process items loaded onto the second factor. The factor loadings for the first factor (relationship conflict) ranged from 0.27 to 0.94 and the second factor (task/process conflict) ranged from 0.44 to 0.96. The correlation between the relationship conflict and task/process conflict latent variables was 0.83.

- The fit indices for the three-factor solution were: $\chi^2_{(20)} = 69.39$, p < 0.001, CFI = 0.99, TLI = 1.0, SRMR = 0.02, and RMSEA = 0.06. The three relationship items loaded distinctly on the first factor (relationship conflict); however, the G10IANGR item ("*How often do you get angry with your co-workers*?") loaded onto both the first and the third factor. Factor two (task conflict) included the items about work opinions, work ideas, work to be done, and disagreements about work. The items G6IWHO (Who does what?) and G11IDELG (Delegation of tasks) distinctly loaded onto the third factor (process conflict). The G8ITASK item (The way to complete a task) cross-loaded onto the relationship and task factors as opposed to the intended process factor. As with the three-factor CFA of the original scale, the three factors were highly correlated ($r = 0.78$ to 0.88). The three-factor structure demonstrated the best fit.

---

[29] The criterion used was a factor loading with less than a 0.20 difference (Tabachnick & Fidell, 1996).

EFA within a CFA Framework

The exploratory factor analyses illustrated that the fit indices were slightly better with a three-factor structure; however, not all the items loaded onto their respective factors. Accordingly, a two-factor structure was deemed to be a more acceptable solution. To verify that a two-factor solution provided acceptable fit, and to examine the pattern of item-factor relationships, an "*exploratory factor analysis within the CFA framework*" (E/CFA) was conducted (Brown, 2006). Before moving to CFA, this test can be used to explore the measurement structure in more depth. The E/CFA specification produces more information than does an EFA, including the "statistical significance of cross-loadings and the potential presence of salient error covariances" (Brown, 2006, p. 194). In an E/CFA, the factor variances are fixed to unity, the factor covariances are freely estimated, and an anchor item for each factor is selected (the loadings on the anchor items are fixed to zero) (Brown, 2006).

For the 11-item Individual Conflict Scale, items 1 to 4 (G1IFRIC, G4IPERS, G7ITTENS, G10IANGR) had statistically significant loadings on the relationship factor and no statistically significant cross-loadings on the task or process factors. Items 5 to 8 (G2IOPIN, G3IIDEA, G5IWRKDO, G9IWRK) had statistically significant loadings on the task factor. One item (G8ITASK), from the process factor, had a statistically significant loading on the task factor. As with the three-factor EFA, the E/CFA results indicated that two of the original process conflict items (G6IWHO and G11IDELG) had statistically significant loadings; however, one process item (G8ITASK) did not significantly load onto the process factor. There were also three statistically significant task items (G2IOPIN, G3IIDEA, G9IWRK) that cross-loaded onto the process factor. This suggested that a three-factor model was not defensible and the process conflict latent variable did not adequately discriminate from the other factors.

A subsequent E/FCA was conducted with 11 items and two factors (relationship and task/process conflict). Items 1 to 4 (G1IFRIC, G4IPERS, G7ITTENS, G10IANGR) had statistically significant loadings on relationship conflict; however, there were statistically significant cross-loadings for task item 5 (G2IOPIN) and task item 6 (G3IIDEA) on the relationship conflict factor. Items 4 to 11 had statistically significant loadings on the task/process factor along with a cross-loading of the G10IANGR item.

Although the findings were somewhat supportive of a two-factor model with 11 items, to further explore the cross-loadings of the G2IOPIN, G3IIDEA, and G10IANGR items, an E/FCA was conducted on a two-item factor structure with 8 items. The item cross-loadings in the 11-item model may have reflected an artifact associated with the process items; therefore, the 3 process conflict items were removed. Moreover, prior psychometric evaluation of the Intragroup Conflict Scale, which was used to develop the Individual Conflict Scale, demonstrated support for a two-factor structure (Jehn, 1994, 1995; Pearson, Ensley, & Amason, 2002). The remaining 8 items represented the relationship and task conflict factors. Items 1 to 4 (G1IFRIC, G4IPERS, G7ITTENS, G10IANGR) had statistically significant loadings on the relationship factor. Items 5 to 8 (G2IOPIN, G3IIDEA, G5IWRKDO, G9IWRK) had statistically significant loadings on the task factor. One relationship item (G10IANGR) had a statistically significant cross-loading ($\beta = 0.27$, z score = 2.87, $p < 0.01$) on the task factor. Based on the E/CFA of the Individual Conflict Scale, there was sufficient support for a two-factor measurement structure with 8 items and a cross-loading of G10IANGR onto both factors.

According to Barki and Hartwick's (2004) typology, interpersonal conflict involves three properties: disagreements about tasks and personal relationships, interfering behaviour that prevents others from doing things, and negative emotion resulting from work or personal things. Inspection of the relationship conflict items revealed that G1IFRIC ("*How much friction is there between you and your co-workers?*"), G4IPERS ("*How much are personality clashes evident between you and your co-workers?*"), and G7ITTENS ("H*ow much tension is there between you and your co-workers?*") identified a negative emotion resulting from disagreements attributed to non-work related preferences, whereas G10IANGR ("H*ow often do you get angry with your coworkers?*") specified a negative emotion (anger) that could result from work or non-work related disagreements. In other words, anger could arise as a result of conflict pertaining to task or relationship related disagreements. Accordingly, it would make sense that the anger item could represent both the task and relationship conflict constructs as identified by the parameter estimates that cross-loaded on these two factors.

APPENDIX G: FREQUENCY DISTRIBUTIONS OF THE STUDY VARIABLES

Figure G.1   **Relative Frequency Distribution of the D-Scores for the *Actual* Age Diversity Variable**
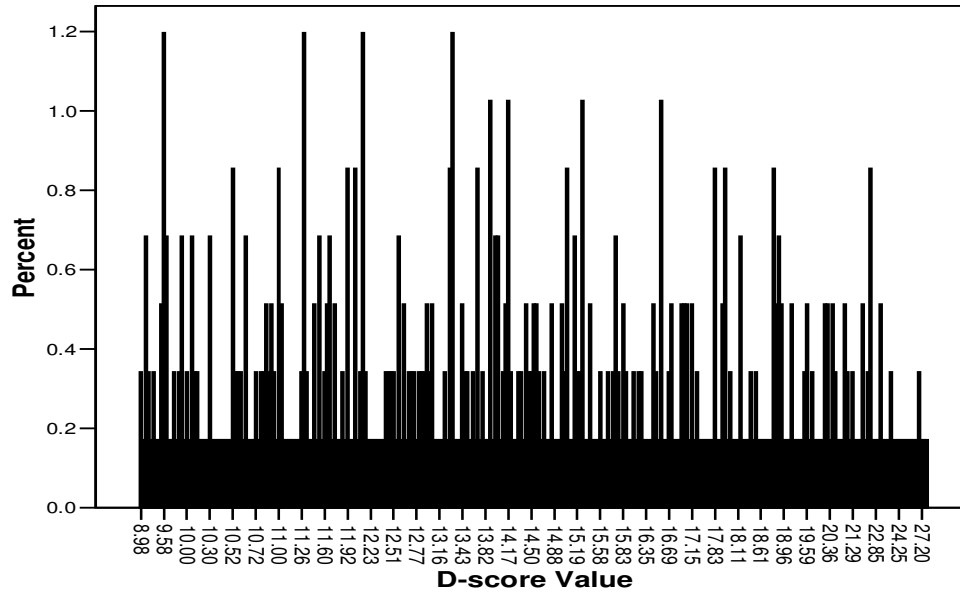
Figure G.2   **Relative Frequency Distribution of the D-Scores for the *Actual* Educational Diversity Variable**
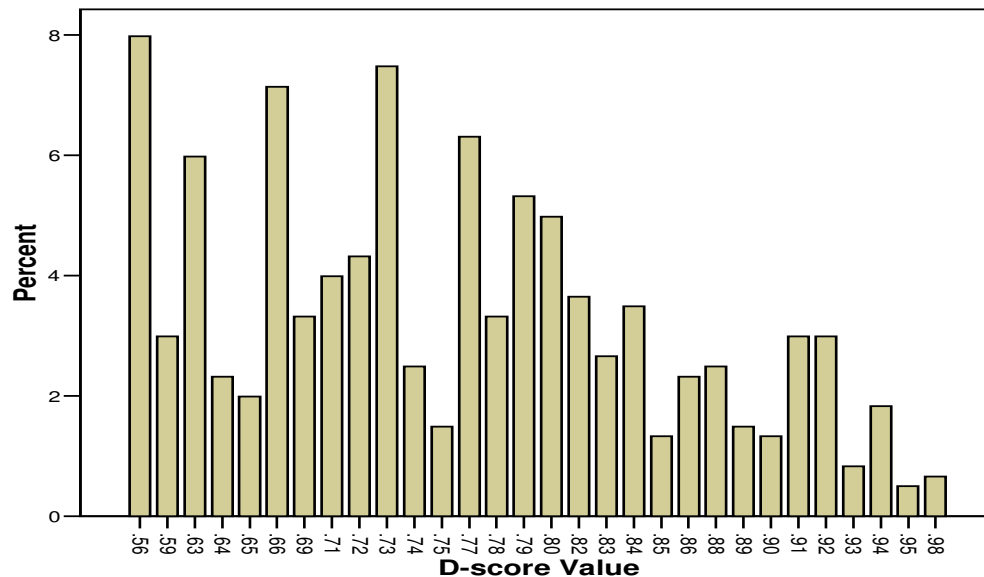
Figure G.3   Relative Frequency Distribution of the D-Scores for the *Actual* Ethnic/racial Diversity Variable
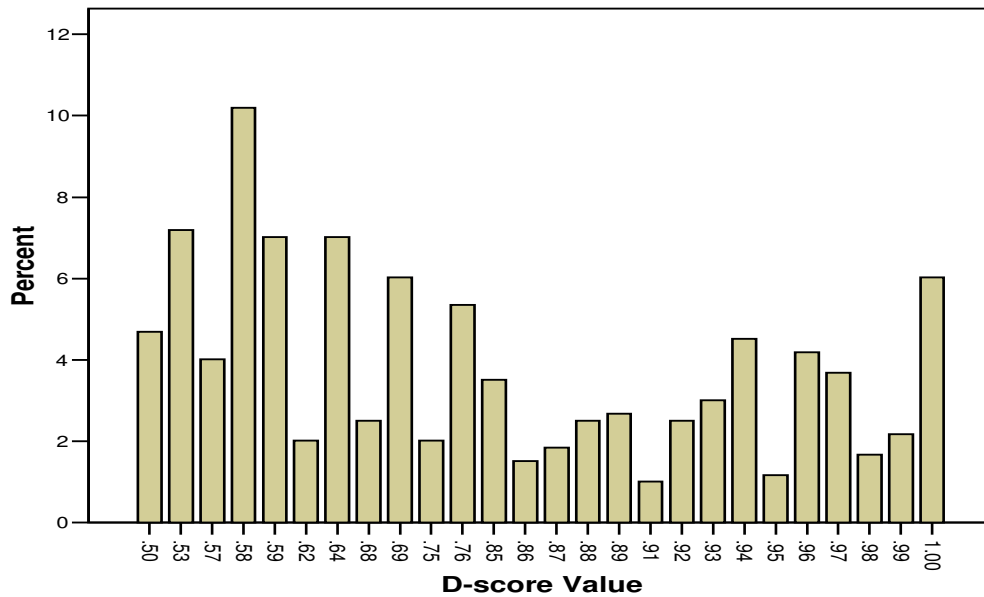
Figure G.4   Relative Frequency Distribution of the Average Total Score for the Contemporary Work Values Scale (16 items)
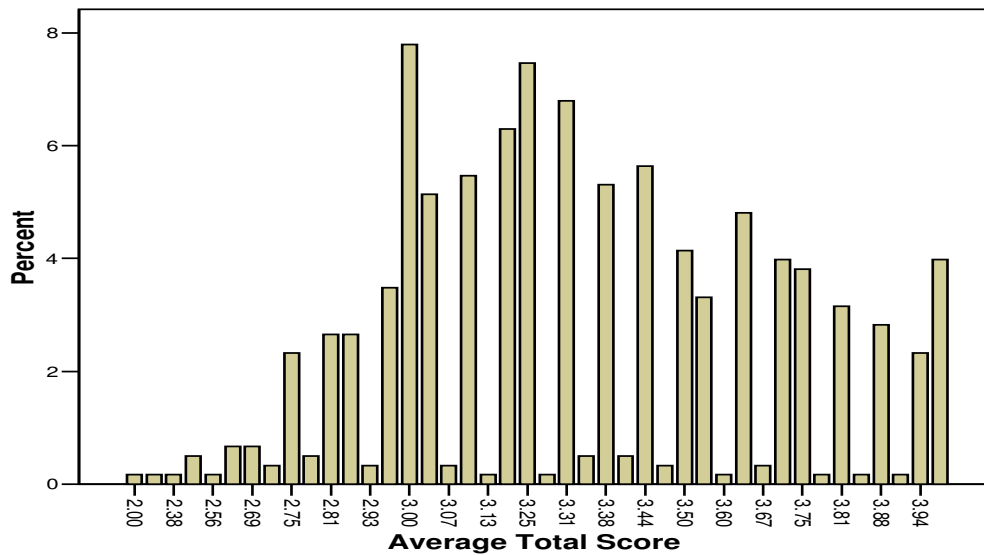
Figure G.5   Relative Frequency Distribution of the D-Scores for the *Actual* Work Values Diversity Variable
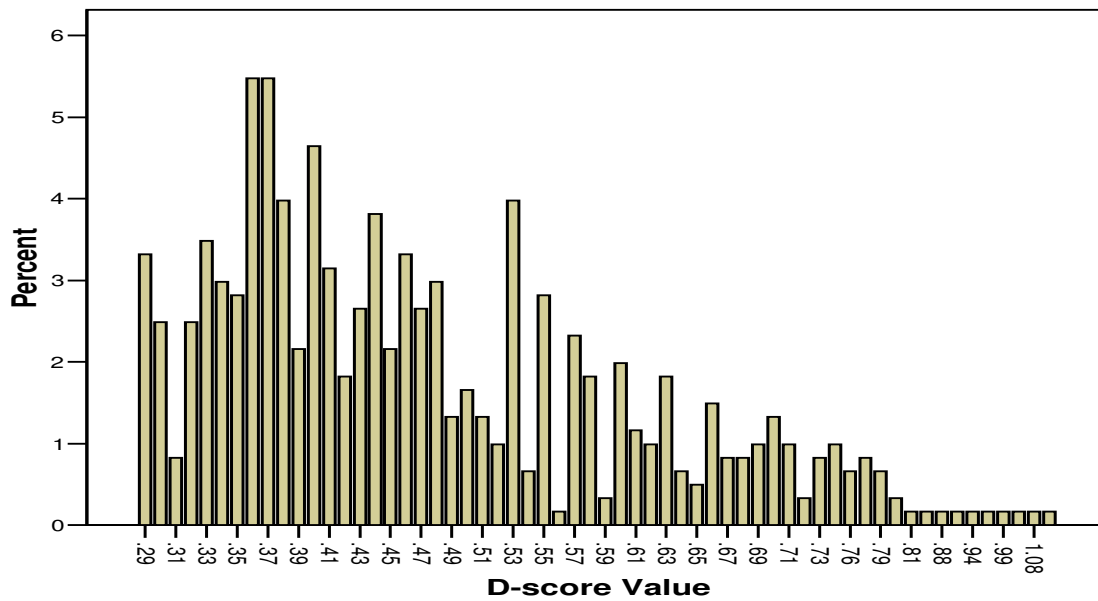
Figure G.6   Relative Frequency Distribution of the *Perceived* Age Diversity Variable
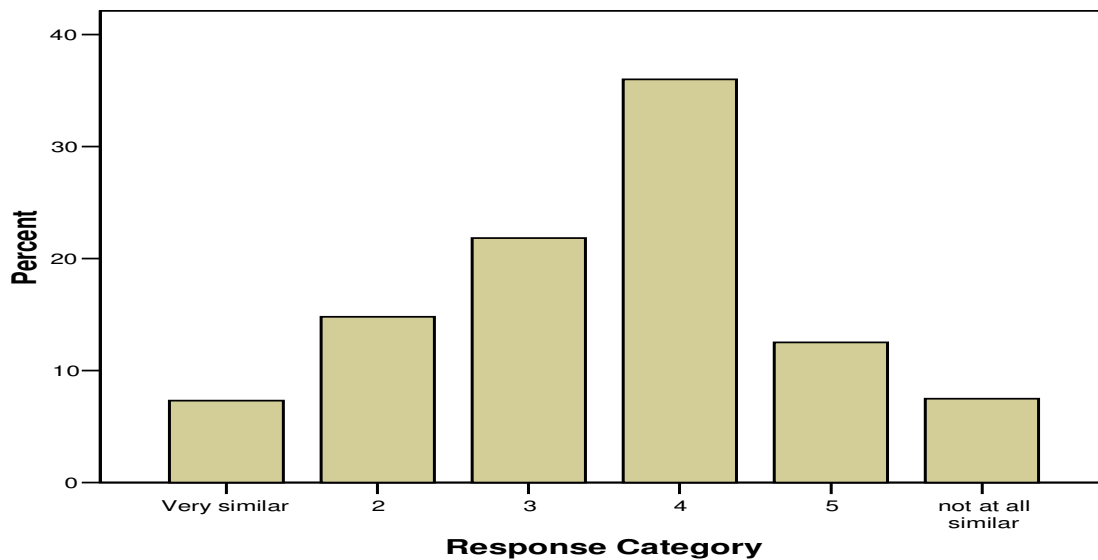
Figure G.7   Relative Frequency Distribution of the *Perceived* Educational Diversity Variable
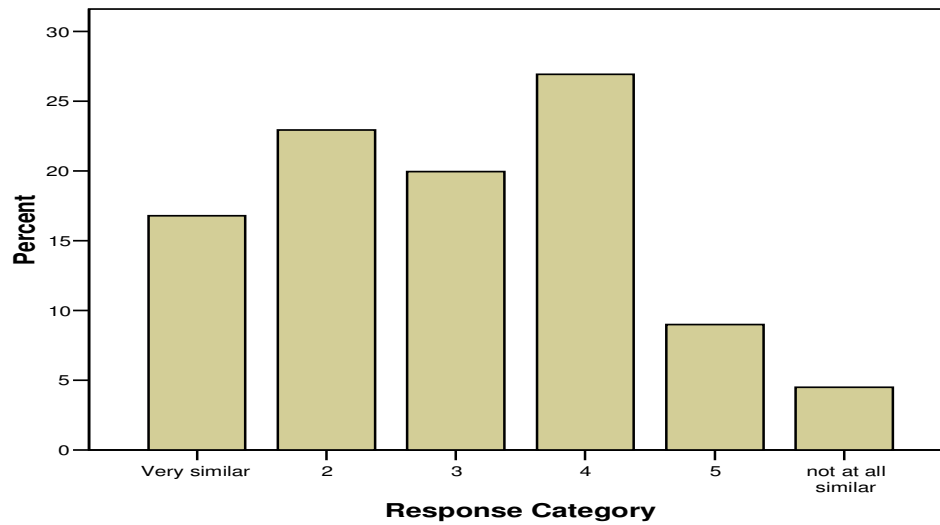
Figure G.8   Relative Frequency Distribution of the *Perceived* Ethnic/racial Diversity Variable
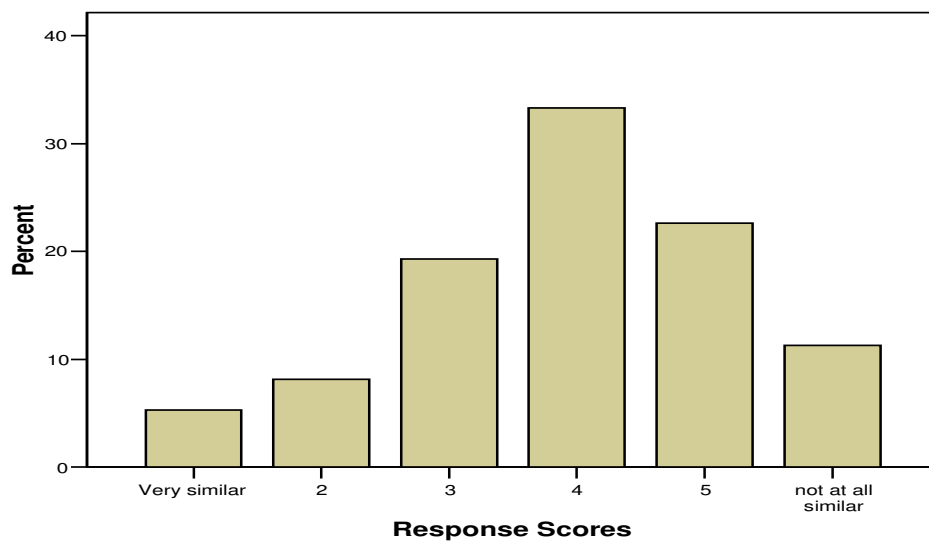
Figure G.9   Relative Frequency Distribution of the *Perceived* Work Values Diversity Subscale Scores
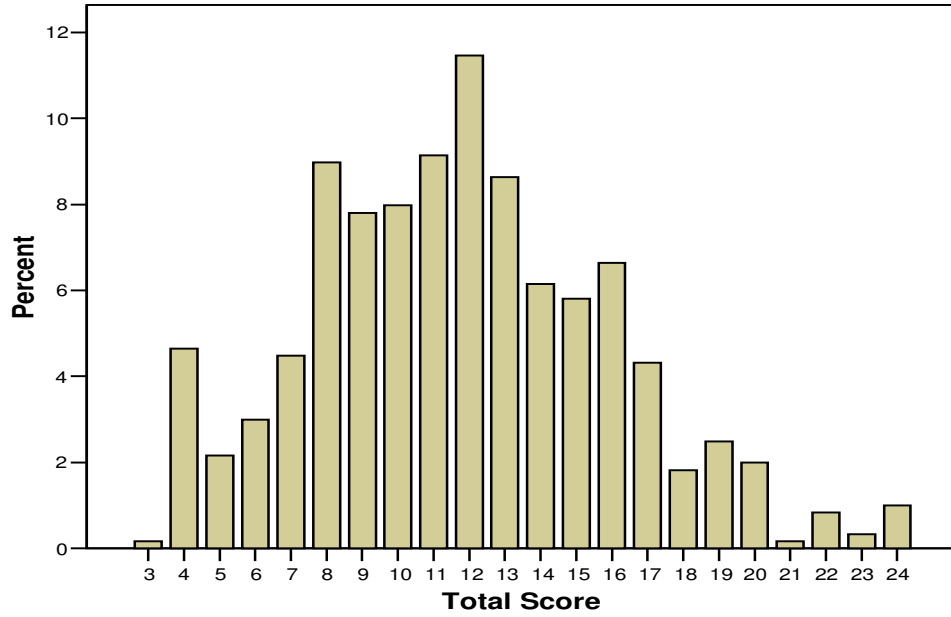
Figure G.10   Relative Frequency Distribution of the Intragroup Relationship Conflict Scores
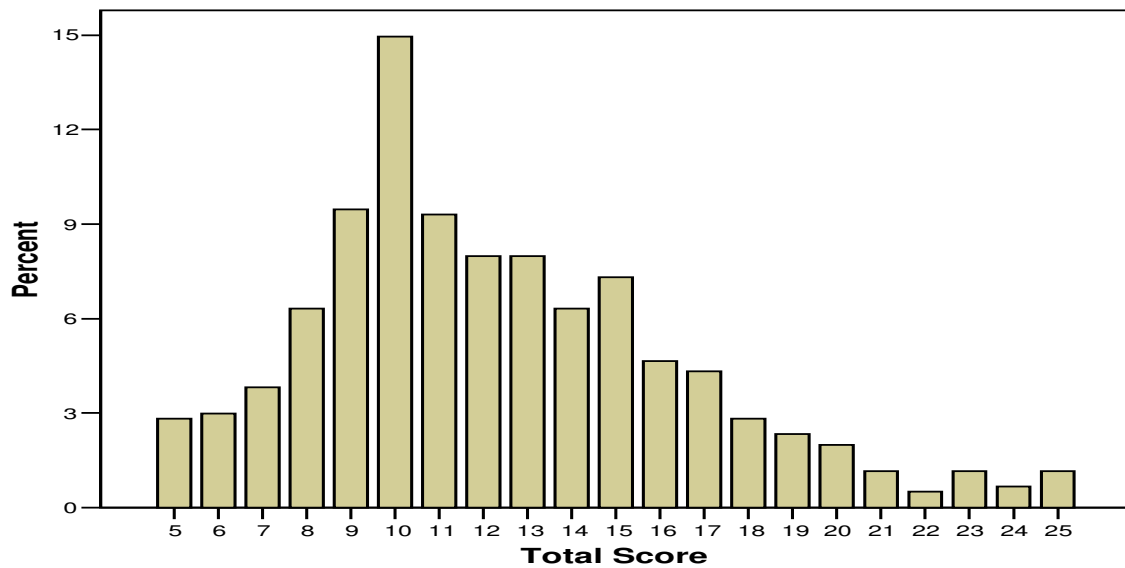
Figure G.11   Relative Frequency Distribution of the Intragroup Task Conflict Scores
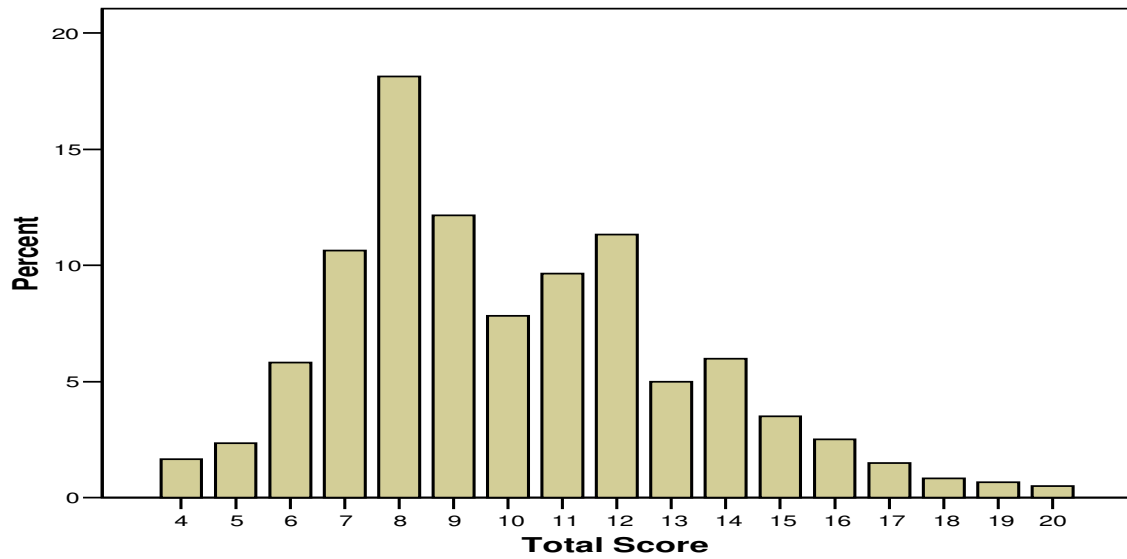
Figure G.12   Relative Frequency Distribution of the Individual Relationship Conflict Scores
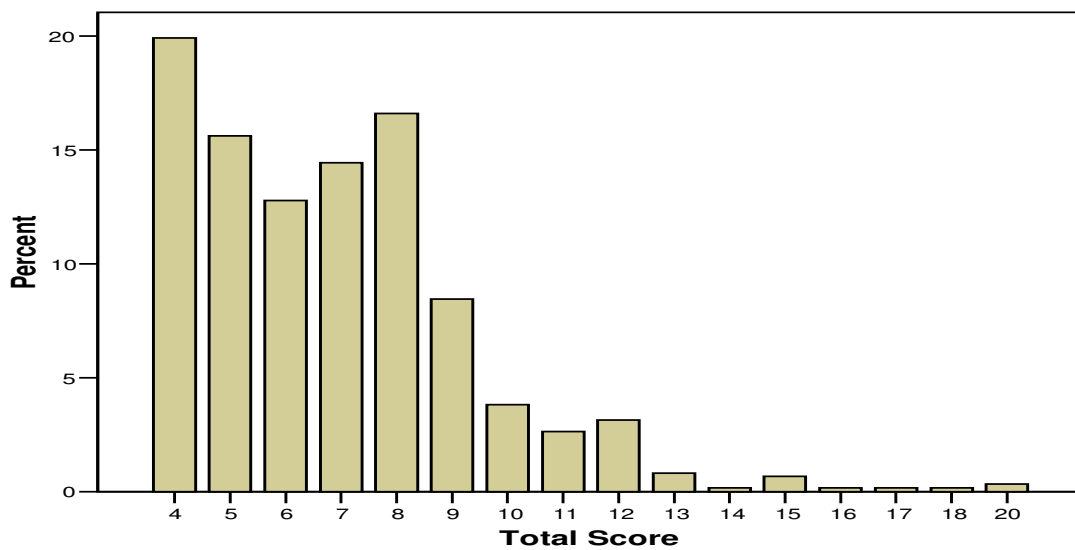
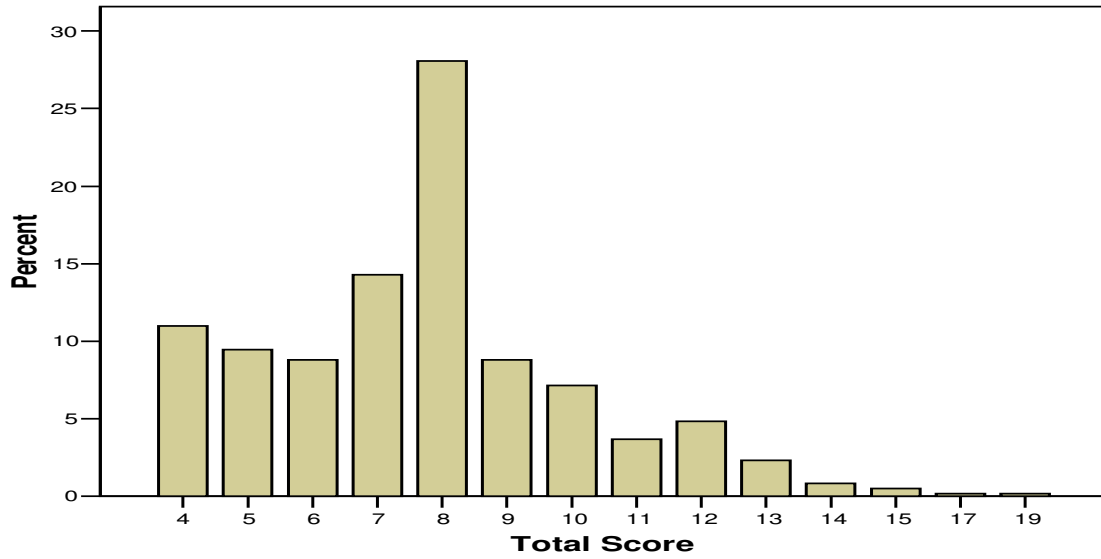**Figure G.13   Relative Frequency Distribution of the Individual Task Conflict Scores**

Figure G.14   Relative Frequency Distribution of the Emotional Exhaustion Scores
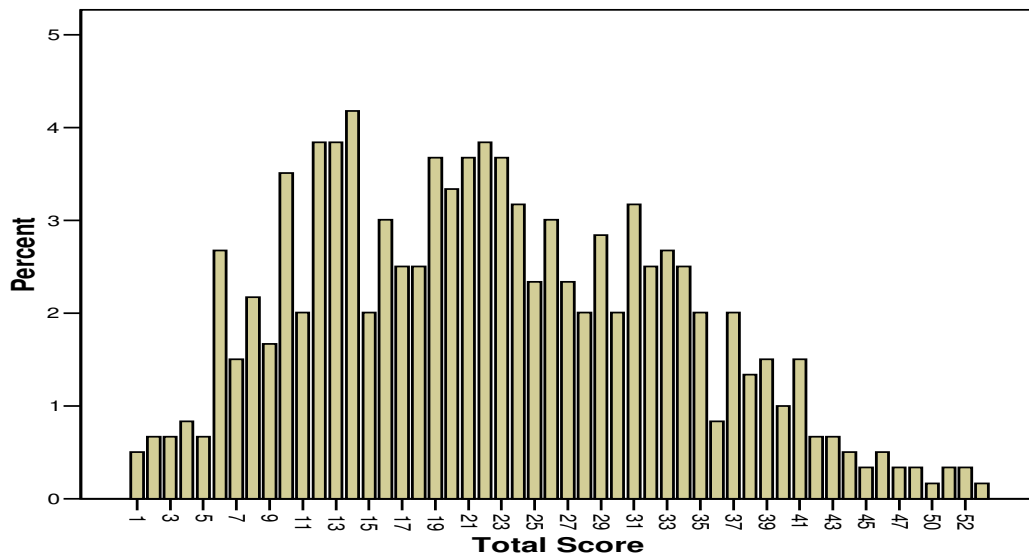
Figure G.15   Relative Frequency Distribution of the Depersonalization Scores
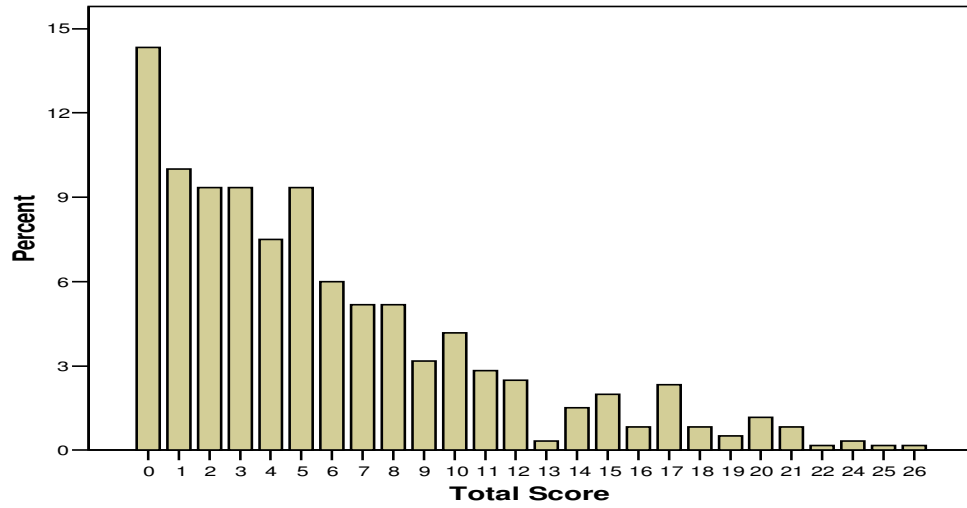

Figure G.16   Relative Frequency Distribution of the Personal Accomplishment Scores