NURSES CARING FOR CHILDREN AND FAMILIES: STRESS, HARDINESS AND BURNOUT

by

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Abstract

Pediatric nurses’ exposure to the suffering of young patients and their families, in addition to high workloads and other workplace stressors, can cause stress and lead to burnout. Burnout is a major cause of nursing staff turnover and this is a serious problem in the face of staff shortages. There has been abundant research on the extrinsic variables leading to burnout in nurses, but very little research has been done on intrinsic variables that can moderate the effects of this stress, such as the personality characteristic of hardiness. The purpose of this study was to examine the relationships between job stressors, hardiness, and burnout among pediatric nurses, and to test whether hardiness moderates the effect of job stressors on burnout.
Preface

This thesis is an original intellectual product of the author, Sara Wilkinson. The data collection described in Chapter 3 was covered by the UBC Research Ethics Board, UBC C&W number H13-01666.
# Table of Contents

Abstract ............................................................................................................................................. ii

Preface................................................................................................................................................ iii

Table of Contents ................................................................. iv

List of Tables ................................................................................................................................. viii

List of Figures .................................................................................................................................... ix

Acknowledgements ....................................................................................................................... x

Dedication ........................................................................................................................................... xi

CHAPTER 1: INTRODUCTION .......................................................................................................... 1

  Purpose of Study and Research Questions. .................................................................................. 3

  Hypotheses....................................................................................................................................... 4

  Significance Of The Study. .............................................................................................................. 4

CHAPTER 2: LITERATURE REVIEW ............................................................................................... 6

  Nursing Job Stress. .......................................................................................................................... 6

  Burnout. ......................................................................................................................................... 9

  Hardiness. ....................................................................................................................................... 11

  Theoretical Framework.................................................................................................................... 14

CHAPTER 3: METHODS .................................................................................................................... 16

  Study Setting and Sample. ............................................................................................................ 16

  Power Analysis............................................................................................................................... 17

  Access And Recruitment. .............................................................................................................. 18

  Ethics. ............................................................................................................................................. 20

  Data Collection Procedures. ......................................................................................................... 21
Instruments. ................................................................. 22
Demographic Characteristics ........................................ 22
Nursing Job Stress ....................................................... 23
Burnout ................................................................. 24
Hardiness ................................................................. 25
Analysis ................................................................. 26
CHAPTER 4: RESULTS ..................................................... 28
Description Of Sample. .................................................. 28
Data Exploration And Preliminary Analyses ...................... 31
Descriptive Statistics Of Key Variables ......................... 31
Nursing Job Stress ....................................................... 32
Hardiness ................................................................. 33
Burnout ................................................................. 33
Bivariate Statistics ....................................................... 34
Research Question and Hypothesis #1 ......................... 36
Research Question and Hypothesis #2 ......................... 36
Research Question and Hypothesis #3 ......................... 38
Emotional Exhaustion ............................................... 39
Depersonalization ..................................................... 40
Personal Accomplishment ......................................... 41
Summary of Hierarchical Regression Analyses ................ 42
CHAPTER 5: DISCUSSION ............................................... 50
Significant Findings .................................................... 50
Socio-Demographic Variables and Burnout. ................................................................. 51
Nursing Stress and Burnout ...................................................................................... 53
Hardiness and Burnout .............................................................................................. 55
Interactions Between Stress, Hardiness and Burnout .............................................. 57
Strengths and Limitations of the Study. ................................................................. 59
Implication for Theory, Research and Practice. ..................................................... 59
Conclusion ............................................................................................................... 62
References ............................................................................................................... 63
Appendix A – Participant Information and Consent Form ........................................ 72
Appendix B – Demographic Information ................................................................. 74
Appendix C - Email Confirmation for Use of ENSS .................................................. 75
Appendix D - Expanded Nursing Stress Scale .......................................................... 76
Appendix E - Instructions for the Scoring of the 57 item ENSS .............................. 78
Appendix F – DRS-15 and Scoring Key for DRS-15 Dispositional Resilience Scale (v.3).... 79
Appendix G – MBI-HSS Sales Receipt .................................................................... 81
Appendix H – MBI-HSS ............................................................................................ 82
Appendix I - Initial Email to Managers .................................................................. 83
Appendix J - Recruitment Brochure ........................................................................ 84
Appendix K - Recruitment Email from Managers ..................................................... 86
Appendix L - Recruitment Letter of Information ..................................................... 87
Appendix M - Recruitment Poster .......................................................................... 89
Appendix N - Recruitment Email Reminder ............................................................ 90
Appendix O - Histograms and Scatterplots ............................................................. 91
Appendix P – Normality Plots ........................................................................................................ 95
List of Tables

Table 1 Scores of Subscales of Burnout. ................................................................. 11
Table 2 Demographic Characteristics Of Participants.............................................. 29
Table 3 Demographic Characteristics Of Participants.............................................. 30
Table 4 Descriptive Statistics For Key Study Variables........................................ 32
Table 5 Maslach And Jackson's Categorization Of Low, Moderate, and High Burnout Scores. 34
Table 6 Correlation Matrix Of The Burnout Dimensions And Hardiness Dimensions....... 37
Table 7 Correlation Matrix. ..................................................................................... 44
Table 8 Hierarchical Multiple Regressions Analyses Predicting the Emotional Exhaustion Dimensions of Burnout Using Different Interaction Terms................................................. 45
Table 9 Hierarchical Multiple Regression Analyses Predicting the Depersonalization Dimension of Burnout Using Different Interaction Terms................................................................. 46
Table 10 Hierarchical Multiple Regression Analyses Predicting the Personal Accomplishment Dimension of Burnout Using Different Interaction Terms ................................. 47
List of Figures

Figure 1 Conceptual Model: The Effects of Job Stress On Burnout Moderated by Hardiness .... 15

Figure 2 The Interaction Effects of Job Stress and the Hardiness Dimension of Control on the
Burnout Dimension of Emotional Exhaustion................................................................. 48

Figure 3 The Interaction Effects of Job Stress and the Hardiness Dimension of Commitment on
the Burnout Dimension of Depersonalization ............................................................... 48

Figure 4 The Interaction Effects of Job Stress and the Hardiness Dimension of Control on the
Burnout Dimension of Depersonalization .................................................................... 49

Figure 5 The Interaction Effects of Job Stress and the Hardiness Dimensions of Challenge on the
burnout Dimension of Depersonalization...................................................................... 49
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Dedication

I am incredibly grateful for all the support I have received from so many people during my time at UBC. I want to thank all of my colleagues, faculty, fellow students, and friends who have helped me along the way. Without your support, sacrifices and free babysitting, none of my success would have been possible. Thanks also to Aunty Mickey, without whom I would not have embarked on this adventure when I did.

Most importantly I cannot thank my family enough for their constant support throughout this process. My Mum, Dad, brother, sister, husband and son have been my biggest cheerleaders. I am lucky to have their endless encouragement, understanding and love.

I sincerely thank everyone who believed I could achieve this goal; to you I dedicate this thesis.
CHAPTER 1: INTRODUCTION

Even if they have no intention to work in pediatric care, nurses entering the profession are aware of, and expect, stressful work situations. These personal viewpoints and expectations are substantiated though findings of several studies that show high levels of perceived stress amongst nurses (Bennett, Lowe, Matthews, Dourali, & Tattersall, 2001; Gray-Toft & Anderson, 1981; McCarthy, Power, & Greiner, 2010). A body of evidence has also accumulated on the several sources of stress in the work environment specific to nursing that include: long work hours, treatment uncertainty, conflict, workload, and physically and emotionally demanding environments around patient illness and death (Gray-Toft & Anderson, 1981; Hawes, 2010; McVicar, 2003; Van Bogaert, Clarke, Roelant, Meulemans & Van de Heyning, 2010).

Given that nurses’ work is stress-inducing, it is not surprising that the topic of workplace stress is of interest to nurse researchers. A popular conceptual model used to study nurse workplace stress is the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984). The model considers the appraisal of stress to be perceptual - based on an individual’s assessment and interpretation of their immediate environment: An individual’s health can be affected if they assess the environment as being a greater challenge than their personal resources can manage.

One way that a nurse’s health can be affected by workplace stress is by suffering from burnout. “Burnout” is a term originally used by Freudenberger in 1974, and it refers to the response of an individual after experiencing repeated stressful events over time (Freudenberger, 1974). Investigation into burnout is important as it has been found to lead to negative health outcomes in nurses (Hillhouse & Adler, 1996). Hillhouse and Adler (1996) evaluated a model in which work related stress significantly predicted burnout that, in turn, predicted physical and
mental health symptoms in nurses. Burnout, therefore, played an intermediary role in the relationship between work related stress and nurses’ general health. The issue of burnout in pediatric nurses is even more critical at a time of staff shortages, both in terms of staff recruitment and staff retention. Accordingly, Brooks and Anderson (2004) conducted a study among hospital nurses to explore the way acute care nurses rated their quality of work life. Several issues were reported by nurses, including feelings of overwhelming stress and a perceived lack of support from administration in decreasing burnout.

Rashotte, Fothergill-Bourbonnais and Chamberlain (1997) explained that nurses working in pediatric settings are at particular risk of burnout because of the stressful effects of working with a young patient population and their close involvement with patients’ families. Nurses in these pediatric settings are particularly vulnerable to burnout when experiencing grief due to the loss of a child for whom they are providing care. According to Kennedy and Barloon (1997), “caring for a child who does not recover and experiences persistent suffering can contribute to the occurrence of burnout” (p.63). However, burnout is not a universal outcome and some pediatric nurses avoid its effects.

My interest is in examining whether and why some nurses who work in particular pediatric care settings are more likely to suffer from burnout than other pediatric nurses working in similarly stressful environments. Recent studies have started to move beyond looking at extrinsic factors that contribute to stress and subsequent burnout, and on to intrinsic factors that may moderate the effects of stressors and prevent burnout. One of the intrinsic factors being studied is that of “hardiness” which has been found to influence the development of burnout (Garrosa, Moreno-Jimenez, Liang & Gonzalez, 2008; Harrison, Loiselle, Duquette & Semenic, 2002; Phillips, 2011). In one study, hardiness buffered adverse conditions such as occupational
stress, and was found to be a predictor of burnout (Harrison et al., 2002). Therefore, interventions aimed at reducing burnout might be more beneficial if they include developing nurses’ hardiness rather than just decreasing job and environmental stressors.

Today’s pediatric nurse is faced with increased acuity of patient diagnoses and treatment complexities that increase their exposure to job stress. Meanwhile, nurse managers have the demanding responsibility of keeping staff as healthy and as well-adjusted as possible, so that they are capable of caring for and treating the pediatric patients and their families. To do this, it is important to examine factors that may moderate the effects of job stress on burnout for pediatric nurses.

**Purpose of Study and Research Questions.**

The purpose of this study was to investigate how hardiness moderates the effects of job stress on burnout in pediatric nurses at Children’s & Women’s Health Centre of British Columbia (C&W). The following research questions guided this quantitative self-reported survey study:

1. Is job stress associated with the three dimensions of burnout (emotional exhaustion, depersonalization, and reduced personal accomplishment)?

2. Is hardiness (commitment, control and challenge) associated with the three dimensions of burnout (emotional exhaustion, depersonalization, and reduced personal accomplishment)?

3. Does hardiness (commitment, control and challenge) moderate the effects of job stressors on the three dimensions of burnout (emotional exhaustion, depersonalization, and reduced personal accomplishment)?
Hypotheses.

1. Job stressors will be positively related to the three dimensions of burnout (emotional exhaustion, depersonalization and reduced personal accomplishment).

2. The three dimensions of hardiness (commitment, control and challenge) will be negatively associated with the three dimensions of burnout.

3. Higher levels of hardiness (commitment, control and challenge) will moderate effects of job stressors on burnout.

Significance Of The Study.

Pediatric nurses care very closely for young patients and their families; their exposure to the young patients’ suffering, in addition to high workloads and other workplace stressors, can cause stress and burnout (Gray-Toft and Anderson, 1981; Rashotte et al., 1997). My interest was to examine if and why some pediatric nurses are more or less likely to experience burnout than other pediatric nurses even when working in the same workplace environment.

Burnout is a major cause of nursing staff turnover and this is a serious problem in the face of staff shortages (Vahey, Aiken, Sloane, Clarke and Vargas, 2004). Institutions must focus not only on staff recruitment, but also on staff retention. There has been abundant research on the extrinsic variables leading to burnout in nurses, such as the death of a patient, inadequate resources and support, and high workload (Faller, Gates, Georges & Connelly, 2011; Aiken, Clarke, Sloane, Sochalski & Silber, 2002; French, Lenton, Walters and Eyles, 2000). However, very little research has been done on intrinsic variables, such as hardiness, that can moderate the effects of this stress, such as the personality characteristic of hardiness.

An evaluation of a nurse’s level of hardiness will allow opportunities for managers and
institutions to assist nurses in choosing the most appropriate area of employment. This will lead to supportive work settings to prevent burnout from occurring; for example in the pediatric care settings. If hardiness is a moderator in the stress-burnout relationship, then studies need to focus on nurse hardiness levels as a contributing factor to burnout. Future research could examine whether and how hardiness can be influenced.
CHAPTER 2: LITERATURE REVIEW

This chapter presents a review of the related literature and is organized around key variables being examined: nurses’ occupational stress, burnout, and hardiness. The review concludes with the theoretical framework underlying this study and conceptual model being tested.

Nursing Job Stress.

In addition to studies in nursing, occupational stress has been researched extensively in several professions such as police work and teaching. Workplace stress has long been recognised as a challenge for many of these occupations, as it can lead to burnout, job dissatisfaction and diminished workplace morale (Aiken, et al., 2002). These results are especially evident in the nursing profession and among other health care workers. For these groups, workplace stress can affect workers physiologically and psychologically, and this, in turn, may affect the health of patients and the hospital in general. There are high financial costs in replacing and training new nurses, the costs of poor morale, poor quality of care, and increased stress on nurses (Lambert & Lambert, 2001). Absenteeism, staff turnover, declining job commitment, lack of job satisfaction and poor patient outcomes have all been linked to nurses’ stress (Farrington, 1995; Irvine & Evans, 1995).

As helping professionals, nurses provide care for individuals and families during both times of wellness, and in times of suffering, illness and treatment uncertainty. Nurses often care for their patient holistically, including their reaction to illness and stress (Rashotte et al., 1997). Qualitative research has shown that nurses often mirror these feelings of stress, loss, grief and
sadness that the patient and family are experiencing (Couden, 2002). Rashotte and colleagues (1997) have shown that patient suffering can leave a nurse susceptible to stress and burnout.

As well as stress occurring as a result of the patient’s condition, workload is a further important stressor that leads nurses to suffer negative health outcomes. Aiken and colleagues (2003) found that when nurses are expected to perform duties outside of their capabilities, such as an excessive workload, they are at risk for burnout. The nurses showed an increased likelihood of burnout and an increase in job dissatisfaction.

The connection between stress and the nursing profession has been studied extensively in the literature. Two scales that offer adequate reliability and validity are the Nursing Stress Index (NSI) and the Nursing Stress Scale (NSS). Between these, the NSS is the most commonly used and the best known (Duquette, Kerowc, Sandhu & Beaudet, 1994).

In 1981, Gray-Toft and Anderson created the Nursing Stress Scale (NSS) to measure the major sources of occupational stress experienced by hospital-based nurses. This was the first instrument developed to focus on nursing stress rather than general job stress. To develop the instrument, the authors reviewed the literature and conducted in-depth interviews with nurses, physicians and a chaplain. Content analysis of study data revealed 34 potentially stressful situations. The authors then grouped the 34 situations into seven subscales: death and dying (7 items), conflict with physicians (5 items), inadequate preparation to deal with the emotional needs of patients and their families (3 items), lack of staff support (3 items), conflict with other nurses (5 items), workload (6 items), and treatment uncertainty (5 items) (Gray-Toft & Anderson, 1981).

Gray-Toft and Anderson (1981) reported the NSS to have adequate internal consistency and test-retest reliability. Statistical association between constructs that were theoretically related
to work stressors in nurses (state anxiety, job satisfaction and trait anxiety) supported validity of the scale. State anxiety as measured by the Affect Rating Scale showed significant correlation with the total NSS score ($r = .35, p < .01$). Trait anxiety as measured using the IPAT Anxiety Scale also showed significant correlation with the total NSS score ($r = .39, p < .01$). Job satisfaction as measured by the Work Subscale of the Job Description Index showed an insignificant, negative correlation with the total NSS score ($r = -.15, p > .05$). Construct validity was supported by factor analysis. Gray-Toft and Anderson concluded that the self-administered NSS was a valid and reliable measurement of occupational stress in hospital-based nurses. The scale has been used extensively in the United Kingdom and North America, in a wide-ranging working environment, though primarily hospital based.

The changing working environments for nurses spurred French, Lenton, Walters and Eyles (2000) to modify the NSS into the Expanded Nursing Stress Scale (ENSS). The ENSS is a change from the original NSS as it identifies stressful situations not reflected in the original NSS, which makes it useful in various work settings. The researchers tested 59 items on a large sample of nurses ($N = 2,280$). Two items (breakdown of computers and floating to other units/services that are short staffed) did not appear to be related to any of the nine subscales that arose in the study of Canadian nurses (French, et al., 2000). The instrument now comprises 57 items, divided into nine subscales: death and dying, conflicts with doctors, inadequate emotional preparation, problems with peer support, problems with supervisors, workload, uncertainty concerning treatment, patients and families, and discrimination.
**Burnout.**

Freudenberger was the first to use the term burnout in 1974. He described burnout as a feeling of exhaustion and failure in the workplace. Maslach and Jackson (1981) further described it as leading to negative attitudes towards work, with decreased productivity and a lack of efficiency. Since then, the definition of burnout has been elaborated as a long-term reaction to occupational stress; it is an outcome that is a progressive process, primarily affecting those working directly with people, such as nurses (Maslach, Jackson & Leiter, 1996). It has been described as having a set of symptoms that include lasting fatigue and lessened interest in work. It may also include sleep disorders, cynicism, headaches, eating problems, phobias, depression, irritability and emotional instability (Embriaco, Papazian, Kentish-Barnes, Pochard and Azoulay, 2007; Mealer, Burnham, Goode, Rothbaum, & Moss, 2009; Van Bogaert et al., 2010).

The phenomenon of burnout is defined as involving three dimensions: emotional exhaustion; depersonalization; and, a reduced sense of personal accomplishment. Burnout is a combination of these three dimensions and their characteristics are well understood in the literature (Garrosa et al., 2008; Leiter & Laschinger, 2006). Emotional Exhaustion is characterized by decreased energy required to provide care, frustration, irritability, and having minimal emotional resources. Depersonalization is depicted as a distancing from, and a lack of control over situations. Finally, decreased Personal Accomplishment is described as a feeling of futility with decreased success at reaching goals.

Maslach was among the first to study and quantify the phenomenon of nurses’ burnout, describing it as developing more frequently in those professions that have frequent contact with individuals (Maslach & Jackson, 1981). As emotional resources become depleted, professionals feel that they can no longer give of themselves at a psychological level.
In an international context, approximately 25% of all nurses report experiencing some form of burnout in their careers (Mealer, et al., 2009). Findings also show the cost of burnout to be high. Not only are there high financial costs in replacing and training new nurses, but there are the costs of poor morale, poor quality of care, and increased stress on nurses. In fact, nursing burnout has been associated with low levels of patient satisfaction. Vahey and colleagues (2004) found that nurses’ burnout was a significant factor that influenced patients’ satisfaction with their care. Not only is patient care affected, but burnout has also been associated with high staff turnover, which leads to understaffing and poorer patient outcomes. Burnout also affects the nurse psychologically and physically (Vahey, et al., 2004). Psychological distress, alcohol and drug abuse as well as sleeping disorders have all been reported as manifestations of burnout.

A review of the literature conducted by Duquette and colleagues (1994) revealed that the most widely used tool to measure burnout is the Maslach Burnout Inventory (MBI), regarded as the “gold standard” in burnout research. Maslach and Jackson first introduced the instrument in 1981, and further developed it into the 22-question MBI in 1996. Several versions of the MBI have since been developed, including the MBI–Human Services Survey (MBI–HSS) (Maslach, et al., 1996) which was specifically designed for individuals working in human services and in healthcare. The MBI–HSS will be used in this study to measure burnout.

The MBI-HSS survey consists of three subscales that reflect the three dimensions of burnout. Individual subscale scores and a global score can be calculated; total scores can range from 0 to 132.
### Table 1 Scores of Subscales of Burnout.

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Low</th>
<th>Moderate</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Exhaustion (EE)</td>
<td>0 - 16</td>
<td>17 - 26</td>
<td>&gt;= 27</td>
</tr>
<tr>
<td>Personal Accomplishments (PA)</td>
<td>&gt;= 39</td>
<td>32 - 38</td>
<td>0 - 31</td>
</tr>
<tr>
<td>Depersonalization (DP)</td>
<td>0 - 6</td>
<td>7 - 12</td>
<td>&gt;= 13</td>
</tr>
</tbody>
</table>

*Source: Maslach and Jackson, 1996*

### Hardiness.

A growing body of evidence suggests that certain personality factors can reduce the negative effects of stress on health (Kobasa, 1979a). One of these personality factors is hardiness. Kobasa first proposed the psychological concept of hardiness in 1979. In examining different responses to stressful work environments, Kobasa found that individuals who encountered high levels of stress and continued to be healthy had different personality characteristics than those who experienced the same stress but became unwell. Hardy individuals are more likely to appraise a situation as a positive challenge, rather than a threatening one; potential stressors are seen as potential opportunities for change. Their hardiness acts as a resource to buffer stressful events or adversity (Collins, 1996; Judkins, Arris & Keener, 2005). Hardy individuals have a higher sense of commitment to their work and to themselves and feel a greater sense of control over their environments. Many of the hardiness scales in the literature are grounded in the Existential Personality Theory (Kobasa, 1979b). Viewed from this theoretical perspective, hardiness is seen as a personal attribute or characteristic that enables individuals to remain healthy even under stressful circumstances. People who draw on hardiness do not necessarily suffer under stressful circumstances; they may actually benefit from the stressful experience. These circumstances can be seen as opportunities for mastery and personal growth as will be explained below.
The concept of hardiness can be better understood by examining its three dimensions: commitment, control, and challenge. The dimension of commitment explores peoples’ engagement in life and their commitment to tasks and relationships undertaken. Committed people use their beliefs and values, and their own experience to minimize the perception that a situation is menacing. These individuals see adverse or menacing situations as interesting learning experiences. Individuals who score high in this dimension know how to seek support when in need. Control is characterized as the absence of powerlessness and the recognition of one’s influence on events. People with high levels of control feel that they can influence events in their life and adjust stressful events into more manageable ones. The dimension of control describes those who see themselves as having an internal locus of control, which is an essential element in the promotion of resilience. The dimension of challenge is described as an openness and positive attitude towards change. Change is seen as an opportunity for growth and development and not as a threat. Individuals who score high in this dimension see benefits and opportunities for personal growth from both successes and failures.

Hardiness has been found to buffer adverse conditions such as illness and occupational stress. Lambert, Lambert, Klipple and Mewshaw (1989) conducted an exploratory survey of women with rheumatoid arthritis to determine whether or not social support and hardiness were predictors of psychological well-being when the severity of the rheumatoid arthritic disease process was statistically controlled. It was determined that hardiness and social support were significant predictors of psychological well-being in these women. Furthermore, in an examination of the psychosocial determinants of burnout in a large sample of nurses, Duquette and colleagues (1994) found that hardiness was the most important predictor of burnout.
Unlike the instruments used to measure burnout, there is no “gold standard” in measuring hardiness. A literature search revealed multiple scales and subscales measuring the concept, making it difficult to summarize the measures. In his 1992 review of hardiness theory and research, Funk noted that in the late 1970’s there were over 19 scales used to measure components of hardiness. Kobasa, Maddi and Kahn (1982) incorporated these scales to form a composite, Unabridged Hardiness Scale (UHS). This is considered a 1st generation Hardiness Scale.

Subsequent scales were developed as an improvement on earlier scales by including subscales for the three components of hardiness: commitment, control, and challenge (Funk, 1992; Tartasky, 1993). The older scales also used negative indicators to measure hardiness, with higher scores signifying maladaptive behaviour; conversely, the latest scales use positive indicators, demonstrating stress-resilient qualities. Additionally, the newer scales demonstrate higher levels of internal consistency than the earlier scales. The scale that will be used in this study is the Dispositional Resiliency Scale (DRS).

Many studies have measured hardiness using Bartone’s 1989 Dispositional Resilience Scale (DRS) (Baldwin, Kennedy, & Armata, 2008; Bartone, 2006; Bartone, Ursano, Wright & Ingraham, 1989). This will be the scale used for this study. The scale is a valid and reliable instrument used to measure global hardiness, as well as its three components: control, commitment and challenge. The 45-item scale has three subscales with 15 items for each of the hardiness components.
Theoretical Framework.

This study was informed by Lazarus and Folkman’s Transactional Model of Stress and Coping (1984). Lazarus and Folkman defined stress as an individualized phenomenon. Using this model, stressful experiences or demands are seen as an ever-changing dynamic between an individual, environmental demands, and the individual’s cognitive appraisal of the situation. Demands on an individual can range from minor, but chronic stressors such as everyday arguments with co-workers to major life events or stressors such as the death of a loved-one.

Cognitive appraisal is a process of interpreting an event into either a positive or negative experience. The event is assessed by the individual, and is deemed stressful if they are appraised as exceeding one’s personal resources. Lazarus and Folkman (1984) differentiated between primary and secondary appraisal. Primary appraisal occurs with the individual’s assessment of a situation as being positive, negative or irrelevant. This is followed by secondary appraisal; the individual evaluates what can be done about the particular situation based on their personal resources. Factors that affect an individual’s appraisal of potentially stressful events are both individual, such as their hardiness, and environmental, such as social support. The demands are evaluated and if the well-being of the person is threatened, challenged or harmed by a situation, it is considered stressful. The individual’s ability to cope with a stressful situation is, therefore dependent, on the person’s cognitive appraisal and related actions (i.e., coping). Coping refers to the individual’s use of strategies used to mediate primary and secondary appraisals. This study will examine stress and the outcome of burnout, but I will not include appraisal and coping in the model being tested.

Considering Lazarus and Folkman’s definition of the process of stress, it follows that hardy individuals may differ in perceptions of a stressor compared with less hardy individuals. Hardier
individuals may perceive the demand as less threatening and more manageable than someone who is less hardy (Kobasa, 1979a). The model that was tested hypothesized that the harmful effects of job stress on burnout are moderated (i.e., decreased) by the personal resilience factor of hardiness (See Figure 1).

**Figure 1 Conceptual Model: The Effects of Job Stress On Burnout Moderated by Hardiness**

![Figure 1: Conceptual Model](image_url)
CHAPTER 3: METHODS

This study used a descriptive, correlational design with cross-sectional data. Cross-sectional studies are appropriate for describing the status of an experience or for describing relationships among phenomena at a fixed point in time, but cannot be used to infer causation (Polit and Beck, 2007). They are also susceptible to bias due to low response, but are an inexpensive design that can be conducted relatively quickly.

Study Setting and Sample.

The study used a convenience sample of nurses working in four areas of a pediatric hospital in western Canada: a pediatric intensive care unit (PICU), a surgical unit, two medical units, an oncology unit and a pool of float nurses. The inclusion of these six areas was intended to capture variability in job stress.

Polit and Beck (2007) explained that convenience sampling is a type of nonprobability sampling that uses the most conveniently available sample of people as participants in a study. Though random sampling is the most effective method of reducing bias and accurately representing the population being studied, it is time and labour intensive. Alternatively, non-random, convenience sampling is convenient, economical, and less time-consuming. The disadvantage of convenience sampling though is the possibility of sampling bias, limited generalizability of results and less representativeness of the population (Polit & Beck, 2007).

My inclusion criteria for the sample were: Registered Nurses (RNs) in permanent positions (part-time/ full-time) and casual positions working on one of the units of interest. All staff surveyed must have worked on their current unit for at least 6 months and must have had
direct interaction with infants and children during this time. Exclusion criteria included licenced practical nurses (LPNs), nursing aides, nursing students, and employed student nurses.

**Power Analysis.**

To decrease the possibility of a Type II error, the required sample size was identified by performing a power analysis. For multiple regressions, the estimated population effect size ($\gamma$) is $R^2$ divided by 1-$R^2$; $R^2$ is to be predicted by the researcher based on prior research or conventional effect sizes should be used (Polit & Beck, 2007). The formula below was used to calculate the required sample size for a multiple regression with five predictor variables for a power of .80 and $\alpha = .05$ in a one-tailed test. The calculations yielded a required total sample size of 97 nurses for a moderate effect size, using Cohen’s $d$, ($R^2 = .13$), and 686 nurses for a small effect size ($R^2 = .02$) (Polit & Beck, 2007).

<table>
<thead>
<tr>
<th>Effect Size</th>
<th>Formula</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Effect Size</td>
<td>$N = \frac{L}{\gamma} + k + 1$</td>
<td>$N = 686$</td>
</tr>
<tr>
<td>Moderate Effect Size</td>
<td>$N = \frac{13.6}{.02} + 5 + 1$</td>
<td>$N = 97$</td>
</tr>
</tbody>
</table>

Using an online sample size calculator for a small-to-medium effect size of 0.08, power of .80, and alpha of .05, the required sample size was estimated to be 165 (Sopper, 2008).

For this study, the effect size used was .08. The power was set at .80 and the Alpha was set at .05. With a strong recruitment plan from the six nursing units that I was targeting, I was able to obtain a total sample size of 171 nurses.
Access And Recruitment.

To gain access, I emailed unit managers (Appendix J) to set up a time to meet with them. I met with the managers of the six target sample units to explain the study and request assistance in recruitment. Written approval to conduct research on the unit was sought.

Nurse Managers were given written instructions about their involvement in recruitment for this study. Specifically they were asked to email a “Recruitment Email from Manager” (Appendix L) with an attached “Recruitment Letter of Information” (Appendix M) to the potential participants four days before the surveys were distributed. The nurse managers were also asked to send out one reminder email to potential participants two weeks after distribution of the surveys, see Appendix O. In addition, recruitment posters (Appendix N) were posted in the staff lounges and bathrooms on the six units. Recruitment brochures (Appendix K) were also left in the staff lounges.

Non-response is a concern to researchers conducting any type of survey research. Non-response rates may affect the representativeness of the sample. According to Dillman (2000), response rates to written surveys are usually low and additional measures are needed to increase this rate. The more done to encourage the participant to complete the survey immediately, the more likely it is to be returned. Dillman’s Total Design Method (TDM) focuses on increasing response rates and effectively designing a survey to meet the specific needs of the study.

Dillman’s Total Design Method (TDM) is based on the social exchange theory (Dillman, 2007). A survey can be viewed as a social exchange between the researcher and the participant. The researcher’s aim is to ensure that participants perceive costs as low, rewards high and that trust is established (SAGE Publications, 2008). In order to decrease the perceived costs of participation, the survey must be clear, convenient and easy to complete. Therefore, the survey
was kept as short and clear as possible. The TDM also suggests five strategies that are essential for conducting effective survey research. These are: use participant-friendly surveys; initiate up to five contacts with potential participants, create an easy way for participants to return surveys to the researcher; personalize correspondence; and include a token incentive with the survey request.

I ensured participant-friendly surveys by making sure they were clear, easy to understand and aesthetically pleasing. The design and ordering of the questions was taken into account. Dillman (2007) suggests improving the look of the survey by making them as booklets instead of multiple pages stapled together. The survey was printed on normal legal-size paper (8½” x 14”), folded in half, and stapled on the spine to produce an 8½” x 7” booklet.

Dillman’s (2007) next suggestion is to initiate multiple contacts with members of the sample population. In order to do this, the unit managers sent out a pre-notice email four days before distribution of the surveys, to notify potential participants of the upcoming survey. This established a familiarity between the potential participants and the research study. The next contact was the distribution of the surveys with study information on a cover letter: I placed the survey packets in individual nurses’ workplace mailboxes (See Appendix A). This ensured that all survey materials were left in a location where they were easily accessible by potential participants.

Fourteen days after initial distribution of the survey, a reminder email was sent out by the unit managers in order to encourage participation from those nurses that had not yet completed and returned the survey. The email also thanked those participants that had already completed and returned the survey. I was able to collect completed surveys from each unit multiple times a
These multiple contacts were meant to demonstrate importance of the study and convey the level of the researcher’s desire to communicate with the potential participants.

The cover letter is very important according to Dillman (2007). This study’s cover letter explained the purpose of the study and emphasized the voluntary nature of participation. The anonymity of participants was stressed. Though the form was generic, I personally signed each one. Taking additional time to add a personal touch and sign each form further expresses the importance for participation (Dillman, 2007).

Dillman’s (2007) final strategy for increasing the effectiveness of surveys is to include an incentive. A multi-colour pen was attached to each survey booklet, with the name of the survey printed on it as a small token of appreciation to all potential participants.

Ethics.

I sought approval from both the UBC Behavioural Research Ethics Board (BREB) and the University of British Columbia Children’s and Women’s Health Centre of British Columbia Research Ethics Board (UBC C&W REB), a UBC-affiliated Research Ethics Board (REB) for the Oak Street campus BC Children’s Hospital. Although ethical issues in non-experimental research are fewer than those in experiment studies, ethical issues do exist. Basic ethical principles of protecting the participants were taken into account, including full disclosure. The cover letter to the survey indicated the purpose of the study, the confidentiality of responses, planned use of results and data access and disposal. I had the responsibility not to waste the participants’ time, and so ensured the survey was concise, and that the information collected was of value (Polit & Beck, 2007).
I am an employee of BC Children’s Hospital and have worked on some of the units involved in this study. Conflicts of interest were possibly an issue as I have personal relationships with some of the potential participants. Ensuring objective data collection and participant anonymity was paramount. At the time of the study however, I had not been actively working in the hospital as I was on leave. I returned to work on October 1\textsuperscript{st}, 2013 and the data collection had been finished at that time.

**Data Collection Procedures.**

The most widely used technique for gathering quantitative data is the survey (Polit & Beck, 2007). This is an appropriate method for collecting self-reported data about particular behaviours, beliefs and experiences. The purpose of this study was to collect quantitative data about nurses’ occupational stress, burnout and levels of hardiness, which could be later analyzed. The study used a self-administered paper and pen survey. As the sample was literate and did not need questions read to them, the self-administered survey was deemed the most appropriate method. This method makes it easier to reach a large number of participants in a short amount of time and allows nurses to respond to the survey at their own convenience. There are a number of advantages to this approach, including easy accessibility and participants being able to respond in their own time. Limitations exist though. Persuading participants to complete the survey is of an obvious concern. Also, it is difficult to discriminate between non-participants and undelivered mail.

After obtaining approval from both the BREB and UBC C&W REB, all eligible nurses were invited to participate in the study via email and via printed posters posted on units. I obtained the number of staff nurses on each unit from the nurse managers so that I knew how
many surveys to prepare. Participants had the opportunity to fill out this survey wherever they choose, either at home, or on a break from work. They were asked to seal the survey in the provided envelope and return it to the designated box located in a secure place determined by the nurse managers and myself. Nurses had four to six weeks to complete and return the survey, depending on when I was able to meet with the managers. Recruitment posters were posted in the staff lounges and bathrooms as reminders. Also, recruitment brochures were placed in staff lounges to remind staff to complete and return the surveys.

A follow up, reminder email was sent fourteen days after the last day of distribution of the surveys; this encouraged those that have yet to return their surveys to do so. They were also reminded of the deadline to return the surveys. Reminders were sent to all nursing staff and since the surveys were anonymous, there is no way of telling who returned them.

**Instruments.**

Data was collected using a set of surveys that includes a researcher-designed survey capturing nurse demographic characteristics, the Maslach Burnout Inventory (MBI), the Dispositional Resilience Scale (DRS) and the Expanded Nursing Stress Scale (ENSS). The survey was expected to take approximately 10-15 minutes to complete.

**Demographic Characteristics.**

The demographic tool gathered information on socio-demographic data and data related to the workplace, see Appendix B. Gender, marital status, job status, unit, highest level of education and intention to leave were measured as nominal variables; Age and years in nursing were measured as ratio variables.
Nursing Job Stress.

Nursing job stress was assessed with the Expanded Nursing Stress Scale (ENSS) (French et al., 2000). The ENSS is an expanded and updated version of the classic Nursing Stress Scale (NSS) (Gray-Toft & Anderson, 1981). I contacted the instrument’s authors and received permission to use the instrument, free of charge. See Appendix D for a copy of the ENSS and Appendix E for its scoring instructions. The ENSS contains 57 items that assess nine areas of stress: Death and dying (7 items); conflict with physicians (5 items); inadequate emotional preparation (3 items); problems relating to peers (6 items); problems relating to supervisors (7 items); workload (9 items); patients and their families (8 items); discrimination (3 items); and, treatment uncertainty (9 items). The questions describe situations that have been identified as causing stress for nurses as they perform their duties. Participants were asked to indicate the frequency of work-related stress using a 5-point response scale. Response options are ‘never stressful’ (1), ‘occasionally stressful’ (2), ‘frequently stressful’ (3) and ‘always stressful’ (4). The category “not applicable” was scored as zero (0). Upon completion, a score could have been calculated for each of the nine subscales as well as a global score; total scores can range from 0 to 228.

Factor analysis gave rise to a 57-item ENSS with all factor loadings significant at 0.05. The instrument has strong evidence of reliability and validity, based on a sample of 2,280 Canadian nurses working in a variety of settings (French et al., 2000). The instrument showed higher reliability (α = .96) compared to the original NSS (α = .89). Subscale reliabilities were acceptable between 0.65 (discrimination) and 0.88 (problems with supervisors).
**Burnout.**

Burnout was measured using the Maslach Burnout Inventory – Human Services Survey (MBI-HSS), see Appendix I. The MBI-HSS was available online at a cost of $288 for 400 administrations through the mindgarden.com website. The instrument was quick and easy to obtain. The instrument consists of 22 questions that address how nurses perceive their job and their job environments on an everyday basis. The instrument consists of three subscales that reflect the three dimensions of burnout. There are nine items referring to emotional exhaustion (EE), (For example: “I feel like I'm at the end of my rope”); five items for depersonalization (DP), (For example: “I feel I treat some patients as if they were impersonal objects”); and eight items for personal accomplishments (PA), (For example: “I feel I'm positively influencing other people's lives through my work”). The 7-point response scale describes the frequency of experiencing feelings related to each subscale: ‘never’ (0), ‘a few times a year or less’ (1), ‘once a month or less’ (2), a few times a month’ (3), ‘once a week’ (4), ‘a few times a week’ (5) and ‘every day’ (6). High scores in EE and DP, and low scored in PA signify high levels of burnout. Individual subscale scores and a global score can be calculated; total scores can range from 0 to 132.

Maslach and colleagues (1996) established reliability coefficients for the 3 subscales: .71 for personal accomplishment, .79 for depersonalisation, and .90 for emotional exhaustion in staff members in human service institutions and healthcare occupations. Test-retest reliability was also shown at a .001 significance as: .82 (frequency) for emotional exhaustion, .60 (frequency) for depersonalisation, and .80 (frequency) for personal accomplishment.

There is evidence of construct validity. The validity was demonstrated by Maslach and colleagues (1996). An individual’s MBI-HSS scores were correlated with independent
evaluations made by a person who knew the individual well, one’s spouse for example. Scores were also correlated with job characteristics that were expected to contribute to experienced burnout. Finally, the instrument’s scores were correlated with measures of various outcomes that had been hypothesized as related to burnout. All of these sets of correlations offered significant evidence for the validity of the MBI. The discriminant validity of the MBI-HSS has also been verified. Theoretically different constructs that are not supposed to be associated were in fact, not related. Psychological constructs that might be mistaken with burnout were identified, for example, job dissatisfaction. Although one would expect burnout to have some relationship to low job satisfaction, the data was not highly correlated enough to suggest that they were actually the same construct being measured (Maslach et al., 1996).

**Hardiness.**

I measured hardiness using the shortened version of the Dispositional Resilience Scale, the DRS-15 (DRS-15; Bartone et al., 1989). The instrument was available at [http://www.hardiness-resilience.com/drs-tools/](http://www.hardiness-resilience.com/drs-tools/) for a yearly fee of $37. See Appendix G for the DRS-15, and Appendix H for its scoring instructions. In a review of hardiness theory, Funk (1992) found that the 45-item DRS was the best tool to measure hardiness as it is conceptually and psychometrically sound, however the newer 15-item DRS-15 measure has shown strong correlation ($r = .84$) with the original scale (Bartone, Roland, Picano, & Williams, 2008). The DRS—15 uses five items to measure each of the three components of hardiness: commitment, control, and challenge. A total hardiness score can be calculated by reversing six negatively-keyed items, and adding the responses together. Subscale scores can also be calculated by adding the relevant five items for each of the subscales. In this study, each dimension was
measured and the three subscale scores were compared. A composite score was not calculated.

Internal consistency of the DRS-15 was reported as an alpha coefficient of .82 for the total scale and .77 for commitment, .68 for control and .69 for challenge. Criterion-related and predictive validity have been shown with respect to health and performance under high-stress situations (Bartone, 1999). Scores on the DRS-15 were predictive of illness indicators and health behaviours in a large group of US army reservists. Bartone (2007) measured a 3-week test-retest reliability coefficient of .78, indicating a high reliability of the DRS-15.

Analysis.

Once survey data was collected, data screening and cleaning procedures was conducted using SPSS to assess the accuracy of data entry and appropriateness of the data (e.g., normality, outliers) for the planned analytic procedures. Descriptive analysis was used to summarize the frequencies of stress experiences for each subscale of the ENSS. Appropriate descriptive statistics were then computed for continuous and categorical data. For example, means, standard deviations, and internal reliability coefficients were computed for the total scores in the Expanded Nursing Stress Scale, the three subscales of the Maslach Burnout Inventory and the Dispositional Resilience Scale. Missing data was analyzed using Little’s MCAR test, and dealt with.

Pearson correlation coefficients were computed for continuous and dichotomous variables to establish bivariate relationships between scale and subscale scores, and demographic variables. Hierarchical stepwise multiple regressions were used to evaluate the main effects of hardiness and work stressors on each dimension of burnout. The moderating effects of hardiness on the relationship between job stressors and the three dimensions of burnout were also evaluated using multiple regressions. A separate set of regressions was run for each Burnout
dimension, and each set of regressions involved testing a series of models. Minimum significance level was set to an alpha of .05.

A moderator is a variable that influences the strength between two variables (MacKinnon & Lueckcn, 2008). In this case, hardiness was tested as a moderator of the relationship between nursing job stress and burnout. Moderation tests were conducted using hierarchical multiple regression analysis. Burnout was regressed on three blocks of predictors entered successively into SPSS. Socio-demographic characteristics were entered into the first block of predictors, followed by job stressors, and then hardiness. To test whether hardiness moderated the relationship between job stressors and burnout, I created an interaction term of the product of the predictor variable (P) and the moderator variable (M): \( P \times M = \text{Job Stressors} \times \text{Hardiness} \). This variable was then introduced into the final step of the hierarchical multiple regression. Excel graphs were created to help interpret the results of the regression analysis where moderating effects were present.
CHAPTER 4: RESULTS

This chapter details the results of a study examining the relationship between job stressors, hardiness and burnout among pediatric nurses at a pediatric hospital in western Canada. The results of the data exploration, preliminary analysis and bivariate and multivariate data analyses are described below. Results are provided separately for each research question.

Description Of Sample.

Three hundred and sixty five (365) registered nurses (RNs) were invited to participate in this study by completing paper-and-pencil surveys. Surveys were returned by 171 participants, yielding a response rate of 47% among all eligible RNs. Participants worked on six specialized, high-acuity pediatric patient care units at a pediatric hospital in Western Canada. The units included a pediatric intensive care unit (PICU), a surgical unit, two medical units, an oncology unit and a pool of float nurses.

Participants’ ages ranged from 26 to 60 years ($Mdn = 31$ years). The majority of participants were female ($n = 63, 96\%$), and 81% had a baccalaureate degree in nursing ($n = 137$). Participants’ overall clinical experience ranged from 0.5 to 40 years ($Mdn = 6.75$ years). Ninety-nine participants (58\%) reported that they were married or living in a common-law relationship; 71 (42\%) were widowed, divorced or single. Detailed participants’ demographic characteristics are presented in Table 1.
Table 2 Demographic Characteristics Of Participants

<table>
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<th>Total ( N = 170 )</th>
<th>Unit 1 ( n = 59 )</th>
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<th>Unit 3 ( n = 28 )</th>
<th>Unit 4 ( n = 17 )</th>
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<td>3</td>
<td>1</td>
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<td>( 37.00 ) (26.00-59.00)</td>
<td>( 31.00 ) (24.00-46.00)</td>
<td>( 31.50 ) (23.00-55.00)</td>
<td>( 26.50 ) (23.00-60.00)</td>
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Table 3 Demographic Characteristics Of Participants

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Data Exploration And Preliminary Analyses.

To examine the distribution of the data used in this study, skewness, kurtosis, and normality plots were examined for each of the total scale and subscale scores. The skewness value provides an indication of the symmetry of the distribution, while kurtosis provides information about the ‘peakedness’ of the distribution (Polit & Beck, 2007). The skewness for all scales used in this study range from -0.10 to 1.36 (see Table 2). The kurtosis values for these same scales ranged from 0.09 to 3.74. The highest value for kurtosis was that of the hardiness subscale of commitment; however the Normal Q-Q plot indicated a satisfactory distribution (see Appendix Q). Depersonalization also had a high measure of kurtosis, however the skewness measures for both of these variables were within a satisfactory range. Transforming these two variables would have made it difficult to compare their effects to those of the other two subscales in their domains (Polit & Beck, 2007), so no transformations were done.

Scatterplots of pairs of key variables were also examined to assess the linearity of the relationships, and to examine the assumptions of homoscedasticity and homogeneity of variance (Appendix P). Some mild problems with homoscedasticity and homogeneity of variance were noted, but correlational analyses are fairly robust to violations of these assumptions with an adequate sample size (Tabachnik & Fidell, 2007).

Descriptive Statistics Of Key Variables.

Table 2 presents the univariate statistics for the seven key variables in this study: the job stressors total scale score, the three hardiness subscale scores, and three burnout subscale scores. Measures of the internal reliability (Cronbach’s alphas) of each scale and
subscale are also reported. These were all found to be satisfactory, thereby supporting the
use of these scale scores for further inferential and correlational analysis.

Table 4 Descriptive Statistics For Key Study Variables.

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<td>11.27 (2.03)</td>
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<td>9.82 (2.69)</td>
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<td>.09</td>
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<td>Emotional Exhaustion</td>
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<td>21.97 (10.29)</td>
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<td>.76</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Depersonalization</td>
<td>5</td>
<td>.73</td>
<td>5.74 (4.65)</td>
<td>1.36</td>
<td>2.32</td>
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<tr>
<td>Burnout subscale 3:</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Personal Accomplishment</td>
<td>8</td>
<td>.81</td>
<td>35.68 (6.84)</td>
<td>-.80</td>
<td>.99</td>
</tr>
</tbody>
</table>

*Nursing Job Stress.*

The potential range of scores for job stressors was 57 to 228; actual total scores
ranged from 58 to 223, with a normal distribution. The Cronbach’s alpha for Job Stressors
was .95, indicating high internal consistency, although this may be partially due to the
large number of items in the scale (George & Mallery, 2003). Exploratory Factor
Analysis with Principal Components Analysis did not support the intended nine subscales
of job stressors, therefore only the total job stressors score was used in analysis.
Hardiness.

The three dimensions of hardiness (commitment, control and challenge) were measured using the DRS-15, the shortened version of the Dispositional Resilience Scale (DRS-15; Bartone et al., 1989). Each dimension was measured with five items, and thus the three subscale scores can be compared. A composite score was not calculated.

The means for the commitment and control subscales were similar at 11.07 (SD = 1.92) and 11.27 (SD = 2.03) respectively. The challenge subscale had a mean score of 9.82 (SD = 2.69) indicating that, on average, the participant nurses scored lower on the challenge subscale. The scale demonstrated adequate internal consistency reliability with subscale alphas of .70, .68, and .76 for commitment, control, and challenge respectively. According to George and Mallery (2003), reliability coefficients at or above .70 are acceptable. Higher scores indicate higher levels of hardiness.

Burnout.

Subscale scores were calculated for the three dimensions of burnout which were measured with the Human Services edition of the Maslach Burnout Inventory (MBI-HSS). The three subscales were comprised of 9, 5, and 8 items, and thus the score totals cannot be compared, but scores can be compared to the test author’s categorization of low, moderate, and high scores (see Table 3). Higher scores on the emotional exhaustion and depersonalization subscales indicate higher levels of burnout; however, personal accomplishment subscale items are worded positively, in the opposite direction to emotional exhaustion and depersonalization scores. Thus, higher personal accomplishments subscale scores indicate lower levels of burnout. No total burnout score was calculated.
The mean score for emotional exhaustion score \((21.97, SD = 10.29)\) is within the moderate level of burnout. Similarly, the mean score for personal accomplishment scores of the current study participants \((35.68, SD = 6.84)\) indicates a moderate level of burnout. However, the mean score of the depersonalization subscale \((5.74, SD = 4.65)\) fell within the range for a low level of burnout.

The Cronbach’s alpha for internal consistency were as follows: Emotional Exhaustion = .91, Depersonalization = .73, and Personal Accomplishment = .81. George and Mallery (2003) characterize these as ‘excellent’, ‘acceptable’ and ‘good’, respectively.

<table>
<thead>
<tr>
<th>Table 5 Maslach And Jackson's Categorization Of Low, Moderate, and High Burnout Scores.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subscale</td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>Emotional Exhaustion (EE)</td>
</tr>
<tr>
<td>Depersonalization (DP)</td>
</tr>
<tr>
<td>Personal Accomplishments (PA)</td>
</tr>
</tbody>
</table>

*Note. Source: Maslach and Jackson, 1996*

**Bivariiate Statistics.**

Continuous demographic variables that were skewed, were recoded into dichotomous variables. Years of nursing experience was recoded as “1 = above the median (6.75 years)” and “0 = below the median”. Similarly, years of nursing experience on current unit was recoded as “1 = above the median (4 years)” and “0 =
below the median”. Other demographic variables were recoded from categorical to dichotomous variables as follows:

- Marital Status - recoded to 1 = Married or living in common-law relationships and 0 = Separated, divorced and single.
- Job Status – recoded to 1 = Full time and 0 = part time and casual.
- Education – recoded to 1= Diploma and 0 = all other higher education.

Pearson correlation coefficients were calculated to examine relationships among demographic characteristics, nursing stress, hardiness, and burnout scores, and to answer Research Questions 1 and 2 (see Table 4). Participant age was negatively correlated with the emotional exhaustion \((r = -0.30, p < .001)\) and depersonalization \((r = -0.26, p < .001)\) dimensions of burnout; as age increases, reported emotional exhaustion and depersonalization decreases. Similarly, number of years nursing and number of years nursing on current unit were also negatively correlated with the emotional exhaustion dimension of burnout \((r = -0.20, p = .01 \text{ and } r = -0.18, p = .02 \text{ respectively})\). Therefore, as the number of years of nursing increases both in total and on the current unit, these dimensions of burnout decrease.

Marital status was positively correlated with the emotional exhaustion and depersonalization dimensions of burnout \((r = 0.26, p < .001 \text{ and } r = 0.27, p < .001 \text{ respectively})\). Participants who were married or living in a common-law relationship tended to report higher levels of emotional exhaustion and depersonalization. Conversely, participants who were separated, divorced and single tended to score lower in the three dimensions of burnout.
Education had a negative relationship with the emotional exhaustion \((r = -.30, p < .001)\) and depersonalization \((r = -.25, p < .001)\) dimensions of burnout. On average, participants who did not have a university degree reported lower levels of emotional exhaustion than those with higher education. Job status had a positive relationship with the emotional exhaustion \((r = .17, p = .03)\) and depersonalization \((r = .16, p = .04)\) dimensions of burnout and a significantly negative relationship with the personal accomplishment dimension \((r = -.16)\). Participants who worked full time reported higher levels of emotional exhaustion and depersonalization and lower levels of personal accomplishment than those who worked part time or on a casual basis.

**Research Question and Hypothesis #1.**

**Question:** Is job stress associated with the three dimensions of burnout (emotional exhaustion, depersonalization and personal accomplishment)?

**Hypothesis:** Job stressors will be positively associated with the emotional exhaustion and depersonalization dimensions of burnout and negatively associated with the personal accomplishment dimension of burnout.

Moderate positive correlations were found between total nursing stress and two of the burnout subscales: emotional exhaustion \((r = .48, p < .001)\), and depersonalization \((r = .45, p < .001)\). Job stress and the personal accomplishment dimension were not significantly related; therefore, hypothesis 1 was only partially supported.

**Research Question and Hypothesis #2.**

**Question:** Is hardiness (commitment, control and challenge) associated with the three dimensions of burnout (emotional exhaustion, depersonalization, and personal accomplishment)?
Hypothesis: The three dimensions of hardiness (commitment, control and challenge) will be negatively associated with the emotional exhaustion and depersonalization dimensions of burnout and positively associated with the personal accomplishment dimension of burnout.

A negative relationship was found between the burnout dimension of emotional exhaustion and the two hardiness dimensions of commitment and challenge with correlations of -.44 (p < .001) and -.17 (p = .03) respectively. The hardiness dimension of control was not significantly related to the burnout dimension of emotional exhaustion.

A significant relationship was found between the burnout dimension of depersonalization and all three hardiness dimensions. Commitment showed a low to moderate correlation of -.39 (p < .001), whereas the control and challenge dimensions yielded weak correlations of -.20 (p = .01) and -.23 (p < .001) respectively.

Table 6 Correlation Matrix Of The Burnout Dimensions And Hardiness Dimensions.

<table>
<thead>
<tr>
<th>Burnout 1: Emotional Exhaustion</th>
<th>Hardiness 1: Commitment</th>
<th>Hardiness 2: Control</th>
<th>Hardiness 3: Challenge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burnout 2: Depersonalization</td>
<td>-.44**</td>
<td>-.13</td>
<td>-.17*</td>
</tr>
<tr>
<td>Burnout 3: Personal Accomplishment $^a$</td>
<td>.44**</td>
<td>.34**</td>
<td>.30**</td>
</tr>
</tbody>
</table>

a) Personal Accomplishment scores are not reverse coded, lower scores on this sub scale correspond to higher degrees of experienced burnout.

A significant relationship was found between the personal accomplishment dimension of burnout and all three hardiness dimensions. The commitment dimension
had a moderate correlation of .44 ($p < .001$), whereas the control and challenge
dimensions had weaker correlations of .34 ($p < .001$) and .30 ($p < .001$) respectively.
Therefore, except for the correlation between emotional exhaustion and the control
dimension of hardiness, the data yielded the hypothesized relationships.

**Research Question and Hypothesis #3.**

*Question:* Does hardiness (commitment, control and challenge) moderate the effects of
job stressors on the three dimensions of burnout (emotional exhaustion,
depersonalization, and reduced personal accomplishment)?

*Hypothesis:* Higher levels of hardiness (commitment, control and challenge) will
moderate the relationship between job stress and burnout by decreasing the effects of job
stressors on burnout.

To test whether the three dimensions of hardiness moderated the effects of job
stressors on each of the three dimensions of burnout, nine hierarchical regression analyses
were conducted. Three hierarchical regression models were tested for each of the three
outcome measures, with only one interaction term being entered into each model. Each
regression consisted of five hierarchical steps, with variables entered as follows:

- **Step 1:** The four demographic characteristic variables that demonstrated
  significant bivariate relationships with at least one of the outcome variables:
  participant age, marital status, education and job status.
- **Step 2:** Participant nursing unit (dummy coded with Unit 1 as the referent
  variable).
- **Step 3:** Job stressors.
- **Step 4:** The three dimensions of hardiness.
Step 5: One interaction term of one dimension of hardiness x job stressor.

Only the results from Step 5 are reported in this paper, as the entry of additional variables did not cause any significant or theoretically interesting changes to the coefficients found in previous steps. Tables 8, 9 and 10 report the results of the hierarchical multiple regression analyses predicting the three dimensions of burnout dimensions using a different interaction term in each regression.

_emotional exhaustion._

None of the socio-demographic characteristics, nor units, were found to be significant predictors of this dimension of burnout. Total stress was a significant predictor of emotional exhaustion, with the standardized regression coefficient ranging from .32 to .34 ($p < .01$) depending on the interaction term included in the model. However, within each model, the hardiness dimension of commitment was the strongest predictor, with the standardized coefficients ranging from .45 to .46 ($p < .01$). Only one of the interaction terms was found to be statistically significant: $H2$ (Control) x JS ($\beta = -.14, p < .05$).

Although the beta coefficients in the first and third models (which include $H1$ x JS and $H3$ x JS, respectively) indicate that participants with higher levels of job stress or lower levels of hardiness-commitment had higher levels of emotional exhaustion, the effect of these variables cannot be readily interpreted when they are also part of a statistically significant interaction term. To do this, I graphed the main and interaction effects. As seen in Figure 2, for Model 2 (with $H2$ x JS), higher stress is associated with higher emotional exhaustion. However, at higher levels of stress, those with higher...
hardiness-control showed less emotional exhaustion than those with lower levels of hardiness-control. The same was not true at lower levels of stress. Thus, our hypothesis that hardiness would reduce the negative impact of job stressors on the emotional exhaustion dimension of burnout was supported for only one of the dimensions of hardiness: commitment. Together, the set of predictor variables explained 50% to 51% of the variance in the emotional exhaustion dimension of burnout. For model 2 (with H2 x JS), the change in $R^2$ between steps 4 and 5 (not shown on Table 8) indicated that addition of the interaction term explained 1% of the variance in emotional exhaustion.

Depersonalization.

As seen in Table 9, education was the only significant socio-demographic predictor of depersonalization, and only when interaction term H1 X JS was included in the model ($B = -.17, p < .05$). Unit #5 was the only unit that showed a difference in the burnout dimension of Depersonalization ($\beta = -.18, p < .05$), and this was only seen when interaction term H3 X JS was included in the model.

Total stress was a significant predictor of depersonalization, with the standardized regression coefficient ranging from .28 to .33 ($p < .01$) depending on the interaction term included in the model. The hardiness dimension of commitment was also a predictor of depersonalization, with the standardized coefficients ranging from .29 to .30 ($p < .05$).

All three of the interaction terms were found to be statistically significant: H1 (Commitment) x JS ($\beta = -.23, p < .05$); H2 (Control) x JS ($\beta = -.16, p < .05$); and H3 (Challenge) x JS ($\beta = -.18, p < .05$). The interaction effects of all three models can be seen in Figures 3 (with H1 x JS), 4 (with H2 x JS), and 5 (with H3 x JS). In Figure 3, higher levels of stress were associated with higher levels of the burnout dimension of
depersonalization. However, at all levels of stress, participants with higher levels of the hardiness component of commitment show lower levels of stress than those with lower levels of the hardiness component of commitment. In Figure 4, higher stress was associated with higher levels of depersonalization. However, at higher levels of stress, those with higher levels of the hardiness dimension of control show less depersonalization than those with lower levels of the hardiness dimension of control. Finally, Figure 5 demonstrates that at higher levels of stress, participants with higher levels of the hardiness dimension of challenge showed lower levels of stress than those with lower levels of the hardiness component of challenge, although at low levels of stress, levels of depersonalization looked approximately equivalent.

My hypothesis that hardiness would reduce the negative impact of job stressors on the depersonalization dimension of burnout was supported by all three of the dimensions of hardiness (i.e., commitment, control and challenge). For each of the three models predicting depersonalization, the change in $R^2$ between steps 4 and 5 (not shown on Table 9) indicated that addition of the interaction terms explained 2% to 4% of the variance in burnout.

*Personal Accomplishment.*

In contrast to both the emotional exhaustion and depersonalization dimensions of burnout, job stress was not found to be a significant predictor of personal accomplishment (see Table 10). Moreover, none of the interaction terms of job stress by hardiness were found to be statistically significant. Only age and two hardiness dimensions, commitment and challenge were found to predict personal accomplishment, explaining 36% to 37% of the variance. Participants who were younger, and those with
higher levels of commitment and challenge reported higher levels of feelings of personal accomplishment.

**Summary of Hierarchical Regression Analyses.**

In this study, 36% to 51% of the variance in the three burnout dimensions was explained. Among the three dimensions of burnout, emotional exhaustion was the dimension that was best explained ($R^2 = .50$ to .51), and personal accomplishment was the dimension that was least well explained ($R^2 = .36$ to .37). Between 44% and 46% of the variance of the burnout dimension of depersonalization was explained in the regression analyses, depending on the interaction term included in the model.

With respect to key variables of interest, it is notable that personal accomplishment was the one dimension of burnout that was not associated with job stress, after accounting for all other predictors in the model. Also notable, is that control dimension of hardiness did not show any independent explanatory effects after controlling for other predictors in the model, whereas commitment was a relatively strong, independent predictor of all three dimensions of burnout. The hardiness dimension of challenge showed independent explanatory effects only for the personal accomplishment dimension of burnout.

Overall, demographic variables added little to the explanatory power of the models: None were predictive of emotional exhaustion. Education, and years working on Unit 5 were predictive of depersonalization, depending on the interaction term used. However, age was predictive of personal accomplishment, and showed a predictive strength similar to that of the hardiness dimension of commitment and the hardiness
dimension of challenge.

Finally, mixed results were found for the moderating effects of hardiness on burnout. Higher levels of all three dimensions of hardiness (commitment, control and challenge) were found to decrease the harmful effects of job stress on the Depersonalization dimension of burnout; whereas only the hardiness dimension of control was found to moderate the relationship between job stress and Emotional Exhaustion. None of the interaction terms were found to be significant with respect to the personal accomplishment. The final chapter will discuss the implication of these findings.
Table 7 Correlation Matrix.

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<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
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<td>-.16*</td>
<td>.26**</td>
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<td>7</td>
<td>Years on Unit</td>
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<td>.32**</td>
<td>.69**</td>
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<td>.21*</td>
<td>0.07</td>
<td>-.16</td>
<td>-.05</td>
<td>-.10</td>
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<td>Subtotal Hardiness 1: Commitment</td>
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<td>-0.13</td>
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<td>Subtotal Hardiness 3: Challenge</td>
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<td>-0.07</td>
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<td>0.14</td>
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<td>Subtotal Burnout: Emotional Exhaustion</td>
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<td>.26**</td>
<td>-.30**</td>
<td>.17*</td>
<td>-.20*</td>
<td>-.18*</td>
<td>.48**</td>
<td>-.44**</td>
<td>-.13</td>
<td>-.17*</td>
<td></td>
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<tr>
<td>13</td>
<td>Subtotal Burnout: Depersonalization</td>
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<td>.27**</td>
<td>-.25**</td>
<td>.16*</td>
<td>-0.13</td>
<td>-.16*</td>
<td>.45**</td>
<td>-.39**</td>
<td>-.20*</td>
<td>-.23**</td>
<td>.63**</td>
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<td>14</td>
<td>Subtotal Burnout: Personal Accomplishment&lt;sup&gt;d&lt;/sup&gt;</td>
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<td>-0.08</td>
<td>-0.11</td>
<td>-.16*</td>
<td>-.07</td>
<td>-.05</td>
<td>-.16</td>
<td>.44**</td>
<td>.34**</td>
<td>.30**</td>
<td>-0.117</td>
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</table>

<sup>Note</sup>. a) 0 = Married, living common-law, 1 = widowed, separated, divorced, single, b) 0 = BScN, MSN, PhD, Other degree, 1 = Diploma, c) 0 = Part-Time and Casual, 1 = Full-time. d) Personal Accomplishment scores are not reverse coded, lower scores on this sub scale correspond to higher degrees of experienced burnout.
Table 8 Hierarchical Multiple Regressions Analyses Predicting the Emotional Exhaustion Dimensions of Burnout Using Different Interaction Terms

<table>
<thead>
<tr>
<th></th>
<th>H1 X JS</th>
<th>H2 X JS</th>
<th>H3 X JS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>β</td>
<td>B</td>
</tr>
<tr>
<td>Marital Status(^a)</td>
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<td>0.06</td>
<td>0.99</td>
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<tr>
<td>Job Status (^b)</td>
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<td>-0.07</td>
<td>-2.70</td>
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<td>Education (^c)</td>
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<td>-3.58</td>
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<td>Unit #2</td>
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<td>Unit #3</td>
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<td>Unit #4</td>
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<td>Total Stress Score</td>
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<td>Subtotal Hardiness 1:</td>
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<tr>
<td>H3 X JS</td>
<td>-1.04</td>
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<td></td>
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</table>

\( R^2 \) 0.50 0.51 0.50
\( F (df) \) 9.91** (14,124) 9.33** (14,124) 8.96** (14,124)

Note. a) 0 = Married, living common-law, 1 = widowed, separated, divorced, single. b) 0 = Part-Time and Casual, 1 = Full-time. c) 0 = BScN, MSN, PhD, Other degree, 1 = Diploma.

* p < .05. ** p < .01.
Table 9 Hierarchical Multiple Regression Analyses Predicting the Depersonalization Dimension of Burnout Using Different Interaction Terms

<table>
<thead>
<tr>
<th></th>
<th>H1 X JS</th>
<th></th>
<th>H2 X JS</th>
<th></th>
<th>H3 X JS</th>
<th></th>
</tr>
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<td></td>
<td>B</td>
<td>β</td>
<td>B</td>
<td>β</td>
<td>B</td>
<td>β</td>
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\[ R^2 = 0.46 \quad 0.44 \quad 0.44 \]

\[ F (df) = 7.42** (14,120) \quad 6.76** (14,120) \quad 6.84** (14,120) \]

<sup>Note</sup>. a) 0 = Married, living common-law, 1 = widowed, separated, divorced, single, b) 0 = Part-Time and Casual, 1 = Full-time. c) 0 = BScN, MSN, PhD, Other degree, 1 = Diploma.

* \( p < .05 \). ** \( p < .01 \).
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\(R^2\) \(\text{Total Stress Score} = 0.37\)

\(F (df)\) \(4.92** (14,118)\)

\(4.70** (14,118)\)

\(4.98** (14,118)\)

*Note. a) 0 = Married, living common-law, 1 = widowed, separated, divorced, single, b) 0 = Part-Time and Casual, 1 = Full-time. c) 0 = BScN, MSN, PhD, Other degree, 1 = Diploma.

\(* p < .05. ** p < .01.\)
Figure 2 The Interaction Effects of Job Stress and the Hardiness Dimension of Control on the Burnout Dimension of Emotional Exhaustion

Figure 3 The Interaction Effects of Job Stress and the Hardiness Dimension of Commitment on the Burnout Dimension of Depersonalization
Figure 4 The Interaction Effects of Job Stress and the Hardiness Dimension of Control on the Burnout Dimension of Depersonalization

Figure 5 The Interaction Effects of Job Stress and the Hardiness Dimensions of Challenge on the burnout Dimension of Depersonalization
CHAPTER 5: DISCUSSION

The purpose of this study was to examine the relationships between job stressors, hardiness, and burnout among pediatric nurses, and to test whether hardiness moderates the effect of job stressors on burnout. This chapter outlines the key findings of the study in relation to the published literature. Strengths and limitations of the study are noted, and implications for future research, theory development, and nursing practice are discussed. Lastly, the study presents conclusions with reference to the research purpose and hypotheses.

Significant Findings.

The results of this study provide some insight into the effects of job stress, hardiness and their interactions, on burnout in pediatric nurses. The five key findings of this study can be summarized as:

1. Age was the only demographic variable that was found to be consistently associated with burnout across all three interaction models, and only for the personal accomplishment dimension of burnout.

2. Total job stress was an important predictor of the two burnout dimensions of emotional exhaustion and depersonalization, but it was not a predictor of reduced personal accomplishment.

3. The hardiness dimension of commitment stands out as a strong, independent predictor of all three dimensions of burnout. In contrast, the dimension of control was not found to be a significant predictor in any of the burnout dimensions.

4. The hardiness dimension of challenge was an independent predictor of personal accomplishment with all interaction terms.

5. The interaction between stress and the three dimensions of hardiness varied by the
dimension of burnout included in the model.

Thus, each of the three research hypotheses was partially supported, and the major findings of this study are congruent with past research in the literature.

*Socio-Demographic Variables and Burnout.*

Most of the participants in this study were female and had an average age of 31 years. Age is the only demographic variable that showed significance in all three models, and only for the personal accomplishment dimension of burnout. Younger nurses reported higher levels of emotional exhaustion and depersonalization burnout than older nurses. These finding are supported by a literature review of burnout conducted by Duquette and colleagues (1994) and the meta-analysis of Brewer and Shapard (2004) about the effects of age and experience on burnout. Age remained a significant predictor personal accomplishment dimension of burnout in multivariate analysis, when all the other predictors were included.

This finding can be attributed to many possible explanations. Maslach (1982) theorized that with age, nurses have a more realistic perspective on life and are less prone to burning out. On the other hand, nurses who have already “burned out” may have left the workforce. Another possibility is that ageing could act as a protective factor. Younger nurses may see their roles as more ambiguous and perceive their workloads as heavier. However, as they mature, they may become more satisfied and secure in their jobs and exhibit less burnout. Mature professionals may have learned and developed ways to cope with work-related stress and therefore may avoid burnout. However, in this research sample, the years of nursing experience were negatively associated with only one dimension of burnout: Emotional exhaustion.

The majority of participants in this study were married or living in common-law relationships, they held a bachelor degree or higher, and they were working full time.
status, job status, and education all showed significant bivariate relationships with two of the three burnout dimensions: Emotional exhaustion and depersonalization. Participants who were married or living in a common-law relationship tended to report higher levels of emotional exhaustion and depersonalization than those who were separated, divorced or single. This can be explained by married nurses, or those living with a partner, having additional personal responsibilities which cause them to experience higher levels of emotional exhaustion and depersonalization (Muller, 1986; Woods, 1985). However, after accounting for the other personal and job related factors in the model, marital status ceased to be an independent predictor of burnout. It may be that the effects of marital status are being mediated by job stress, which was not tested for in this study.

Participants who worked full-time reported lower levels of emotional exhaustion and depersonalization and higher levels of personal accomplishment than those who worked part-time or on a casual basis. These results contradict the research of Spooner-Lane and Patton (2007) who found that nurses working full-time reported higher levels of burnout than nurses working on a part-time or casual basis. The results of the present study may be due to the small proportion of the sample that worked part-time: Only 22 participants reported being part-time workers (13%).

Education had a significant, negative bivariate relationship with the emotional exhaustion and depersonalization aspects of burnout. But in the multiple regression results, the only significant finding was for the depersonalization dimension of burnout, and only with the commitment dimension of hardiness in the interaction term. Past research findings have been mixed. Similar to our findings, Bartz and Maloney (1986) and Faller and colleagues (2011) found that participants with less education reported lower levels of burnout, whereas Demir,
Ulusoy and Ulusoy (2003) found that higher education was associated with decreased burnout in nurses. Perhaps there are higher expectations of nurses with higher education, which in turn, puts more pressure on university-educated nurses to deliver on expectations. Failed expectations may produce higher dissatisfaction and more burnout in these nurses.

**Nursing Stress and Burnout.**

The levels of burnout varied in its three dimensions. Nurse participants in the current study scored “low” in the dimension of depersonalization and “moderate” in the emotional exhaustion and personal accomplishment dimensions. Levels of the three burnout dimensions were not different from other research, save for the dimension of depersonalization. Maslach and colleagues (2010) found that among medical professionals, the burnout dimension of depersonalization had a mean score in the moderate category, whereas the present study shows a mean score in the low category. Other studies have shown that pediatric nurses score higher on both the emotional exhaustion and depersonalization dimensions, but lower on the personal accomplishment dimension (Franco, Rodriguez, Fernandez, Marcos, Martinon, Martinon, & Sanchez, 2005). Similar to the current study, other authors have found higher scores for personal accomplishment along with moderately high scores for emotional exhaustion and depersonalization (Gallagher & Gormley, 2009; Oehler & Davidson, 1992).

Total job stress was an important predictor of the burnout dimensions of emotional exhaustion and depersonalization, but it was not a predictor of reduced personal accomplishment. The positive correlations with emotional exhaustion and depersonalization are consistent with a number of other researchers working with these variables (Duquette et al., 1994; Moser & Davidson, 1992; Aiken, et al., 2002, Mealer et al., 2009)

Personal accomplishment was not related to total job stress in the current study. One
possible explanation is that demanding and stressful nursing jobs are inherently rewarding and
growth enhancing. This, in turn, may improve a nurse’s feelings of mastery, which could
enhance feelings of personal accomplishment (Janssen, Schaufeli & Houkes, 1999). It is
evident from the current study that the burnout process evolves differently with respect to its
three dimensions. The three burnout dimensions do not seem to occur sequentially as originally
proposed by Leiter and Maslach (1988). The relationship of personal accomplishment to the
other two dimensions of burnout does not appear to be straightforward. Lee and Ashforth (1996)
have described reduced personal accomplishment to be a function of emotional exhaustion and
depersonalization, or a combination of both. A nurse’s work, with long-lasting and often
overwhelming demands that lead to emotional exhaustion or depersonalization is also likely to
wear away at one’s sense of accomplishment as well.

The development of burnout, and how its three dimensions are related has been well
studied, but there does not seem to be any conclusive evidence of how it develops. It was
originally proposed by Leiter and Maslach (1988) that the three burnout dimensions occur
sequentially. Emotional exhaustion occurs first as a response to a demanding and overwhelming
environment. Next, in order to cope with the exhaustion, nurses distance themselves emotionally
from their patients, bringing about depersonalization. Finally, the exhaustion and poor
interpersonal relationships diminish nurses’ sense of personal accomplishment as their work
loses meaning.

Later, Leiter described a “Developmental Model” of burnout; a mixed sequential and
parallel model where the process of reduced personal accomplishment occurs in parallel to the
first two dimensions of burnout (1993). Leiter explained that emotional exhaustion occurs as a
reaction to environmental stressors and sequentially, depersonalization occurs as a function of
emotional exhaustion. However, decreased personal accomplishment is not a function of emotional exhaustion, but instead works in parallel, and is positively influenced by the presence of resources such as social support, opportunity for skills enhancement and participative decision-making (Lee & Ashforth, 1993).

As mentioned above, nurse participants in the current study scored “moderate” in the emotional exhaustion, “low” in the dimension of depersonalization and “moderate” in the personal accomplishment dimensions. Leiter’s Developmental Model of burnout can perhaps explain this. Moderate emotional exhaustion was evident within the sample as a response to the nurses’ demanding and overwhelming environment. Depersonalization scored low, suggesting that these pediatric nurses had not yet become cynical and emotionally distanced from their patients and work. Perhaps pediatric nurses have learned to downplay their feelings of grief, despair and exhaustion in order to be fully present emotionally for patients and their families. Personal accomplishment scored low in the current study. This result fits Leiter’s model, which does not see personal accomplishment as a result of depersonalization. Instead, personal accomplishment has its own predictors, as described above (Lee & Ashforth, 1993). People do not suddenly become burned out. Instead people move towards increased professional efficacy or towards burnout, depending on their personal reaction to stressful stimuli and environments.

**Hardiness and Burnout.**

Hardiness has been defined in the literature as a personality trait that serves as a buffer in the stress reaction and, therefore, lessens the symptoms that result from exposure to stress (Kobasa, 1982). Individuals with high hardiness are considered to have three characteristics that distinguish them from others with lower hardiness: commitment, control and challenge.

Theory holds that deeply committed individuals have the ability to change their
perception of stressors in order to minimize the threat to their well-being. Committed persons are often involved with others, which provides the basis of social support (Boyle, et al., 1991). Kobassa describes the hardiness dimension of commitment as a tendency for an individual to involve themselves in all activities they encounter (Kobasa et al., 1982). Individuals who score high in the control subscale of hardiness have the ability to choose among options in order to control the perceived stress. They are able to interpret, appraise and incorporate stressful events into their lives, rather than become upset by them. Finally, individuals who score higher on the challenge subscale of hardiness, see change as a challenge rather than a hindrance to their lives. They value a life filled with change and have explored their environment in order to identify resources that aid them in surviving stressful conditions.

Consistent with the findings of Keane and colleagues (1986) and Judkins and colleagues (2005), nurses in this study who reported lower hardiness, generally reported more burnout. In general, the hardiness variables in this study correlated with the burnout dimensions, consistent with the six studies reviewed by Duquette and colleagues (1994). Nurse participants who were more committed to their jobs, and who felt more challenged by their jobs, reported lower scores on the three dimensions of burnout. Essentially, if individuals have high levels of commitment, they will see stressors as something they must overcome and they will stay committed to accomplishing this. If individuals score low in this dimension of hardiness, then obstacles are perceived as insurmountable barriers and may cause them to give up pursuing success in meeting the challenge. The only exception was the control dimension of hardiness that did not correlate significantly with the emotional exhaustion dimension of burnout.

The multivariate results showed distinctive patterns according to the specific dimension of burnout included in the model. After controlling for other factors in the model, independent
effects were shown. Commitment stands out as a main effect. This dimension of hardiness was a strong independent predictor of all three dimensions of burnout. In contrast, the hardiness dimension of control was not found to be a significant predictor in any of the dimensions. Finally, the hardiness dimension of challenge was a notable predictor for personal accomplishment with all interaction terms. Overall, as reported in similar studies (Keane, et al. 1986; Duquette et al., 1994) this pattern supports the idea that the hardiness construct can contribute to some understanding of burnout. When confronted with stress, those nurses with higher levels of hardiness tend to reveal lower levels of burnout.

**Interactions Between Stress, Hardiness and Burnout.**

Hierarchical multiple regression analysis showed that the three dimensions of hardiness make varied contributions to the burnout dimensions, after accounting for the effect of job stress, work site and demographic characteristics. The interaction between stress and the three dimensions of hardiness varied by the dimension of burnout used in the interaction. Each dimension of hardiness showed an interaction effect with job stress for the depersonalization dimension of burnout. Only the control dimension of hardiness showed an interaction with job stress, and only for the emotional exhaustion dimension of burnout. There were no interaction effects between the challenge dimension of hardiness and job stress with the three dimensions of burnout.

It is significant that in the present study, control was the only aspect of hardiness that interacted with job stress in regard to emotional exhaustion. Nurses who scored high on the control dimension of hardiness, and who were able to interpret, appraise and incorporate stressful events into their lives, rather than become upset by them, were less likely to suffer from the emotional exhaustion dimension of burnout. It is also significant that all of the interaction terms
were predictive for the depersonalization dimension of burnout, and none were predictive of the personal accomplishment dimension. Among the three dimensions of burnout, personal accomplishment was least well explained. Personal accomplishment was shown to be the only dimension of burnout that was not associated with job stress, after accounting for all other predictors in the model. This again fits Leiter’s Developmental model which explains that personal accomplishment is not a function of emotional exhaustion and depersonalization, but has its own predictors (Leiter, 1993).

In Maslach, Schaufeli and Leiter’s review of burnout literature, an individual prone to burnout had clear personality profile (2001). Low levels of hardiness, poor self-esteem, an external locus of control and an avoidant coping style were all included in this profile. Kobasa and Maddi (1984) theorize that nurses with increased hardiness have the ability to offset stress with adaptive strategies that help the individual seek support and face up to stress-causing situations. This in turn reduces the threat and risk of burnout. In the current study, hardiness appears to have beneficial effects in reducing burnout, but it did not prevent those with high levels of total stress from suffering high levels of burnout. This failure to observe a moderating effect of hardiness in all three dimensions of burnout contradicts the findings of Kobasa and colleagues (1982). However, there are significant differences between the present study and Kobasa’s earlier work. Kobasa only used male participants, whereas the present study primarily used female participants. Kobasa used a scale that measured general life stressors, rather than only work-related stressors. Perhaps hardiness is a less effective buffer of stress in the work setting than in non-work areas.
**Strengths and Limitations of the Study.**

There are several strengths to highlight in this study. The sample size of 171 nurses exceeded the sample size required for a power of 80%. Most importantly, this study makes a valuable contribution to the research literature on burnout in nurses in a number of ways. First, the population of interest in this study were pediatric nurses. Few studies have previously investigated the effects of stress and hardiness on burnout among pediatric nurses or among nurses in Canada. Second, this study not only examined the influence of hardiness, a characteristic rarely studied in nursing research, on burnout, but specifically examined the main and moderating effects of each dimension of hardiness on each dimension of burnout.

This study has some limitations. Convenience sampling was used and the sample was restricted to just one hospital; this may reduce the generalizability of study findings. Also, a cross-sectional design was used which limits causal interpretations. In addition, I relied solely on self-reports during data collection, which may have inflated the observed association between variables due to common method variance.

**Implication for Theory, Research and Practice.**

It is generally understood that a nurse’s work is stressful. Researchers agree that prolonged exposure to stress generates physical and emotional exhaustion. Nurses must stay at a constant state of alertness while working with patients and their families. Pediatric nurses in particular have to deal with the pain, loss, disease and death associated with young patients. These take their toll on nurses, both emotionally and physically. Some nurses develop symptoms of burnout, which is known to contribute to job turnover. This turnover is not only costly for the organization, but also impacts negatively on patient care, as well as on nurse’s personal and professional growth. Numerous studies have documented the costs of stress and burnout, both to
the individual nurse, to their patients and to the organization as a whole (Maslach and Jackson, 1981; Vahey et al., 2005).

Research studies in nursing have tended to focus on the problems of stress and turnover and how to reduce stress. However, this study illustrates a need to redirect research and focus on how to improve assessments of nurses’ levels of hardiness. Research must continue to study the overall relationship between the stress, hardiness and burnout variables. Hardiness has been identified as a moderator in the stress – burnout relationship. It is the responsibility of nursing to further study the relationship between hardiness and burnout, and perhaps to promote the development of individual hardiness through education, administration and research. Given that this study was able to explain 36 to 51% of the variance of burnout, this suggests that major strides in reducing burnout and turnover can be accomplished.

The relationship established between age and burnout in the study has other important implications. Young nurses seem particularly vulnerable to burnout and so they may require more supervisor or mentorship support than other older nurses. Such support may aid in the retention of younger nurses. Mature, experienced nurses may be a valuable resource on nursing units. Because of their maturity and experience, they can act as significant mentors for younger nurses (Brewer & Shapard, 2004).

The present findings have implications for nursing education. Stress management courses may benefit both the education of nurses already in practice and the education of student nurses, who may be just as vulnerable to burnout. Such education may put an emphasis on communication and interpersonal skills to help prepare nurses for effective interactions with patients, co-workers, and management. Courses may teach nurses to be more aware of their feelings, the power of human strengths and positive qualities, such as hardiness.
Even though stress has a direct relationship with emotional exhaustion and depersonalization, the reduction of stressors in the nursing environment cannot be easily achieved. Maddi and Kobasa (1984) have argued that hardiness can be taught and learned at any time of life, but no studies have been identified that investigate this relationship. However, as mentioned above, hardiness can be understood as a factor of psychological resilience. Jackson and colleagues (2007) support that everyone has the potential for personal resilience, and that strategies that strengthen resilience and reduce vulnerability can be developed. Multiple studies have shown that nurses can be protected from unhealthy work environments by enhancing their resilient behaviours (Glass, 2009; McDonald, Jackson, Wilkes & Vickers, 2013). Programs can be incorporated in nursing education to promote resilience, including positive hardiness qualities, to reduce emotional exhaustion and depersonalization, and to increase feelings of personal accomplishment. The effectiveness of such a program and of strategies to combat stress and to avoid burnout certainly warrants further research.

If hardiness acts as a buffer for burnout and the hardiness of individuals can be measured, nursing administrators may be able to use these predictors to select and place staff nurses. A strong commitment to self, to work and the awareness of an internal locus of control may be particularly important in selecting nurses for the most stressful units of the hospital. These characteristics are essential in creating a positive workplace culture for staff retention (Judkins et al., 2005).

Hardiness has received attention recently because of a surge in the positive psychology movement (Bonanno, 2005), but more research remains to be done. To what extent does hardiness protect a nurse from physical and psychological stressors? Can hardiness be taught and developed? These questions point to a need for longitudinal studies on hardiness, stress and
burnout among nurses. Hardiness especially needs more study to examine the extent to which it buffers stressful impact of nurses’ health and well-being.

Conclusion.

The purpose of this study was to examine relationships between stress, burnout and hardiness among pediatric nurses. The sample was of 171 nurses working on six units of a hospital in western Canada. To investigate the relationship between burnout and hardiness this study used a self-report survey, which consisted of a demographic questionnaire, the Expanded Nursing Stress Scale (ENSS), the Dispositional resilience Scale (DRS-15) and the Maslach Burnout Inventory – Human Services Survey (MBI-HSS).

Results of this study provide support for the framework that proposes nursing job stressors, and hardiness dimensions, especially that of commitment are significant predictors of the three burnout dimensions. They suggest that increasing the hardiness of nurses may reduce burnout by moderating the experience of stress. This, in turn, may mitigate the experience of emotional exhaustion and depersonalization while increasing feelings of personal accomplishment. Interventions to reduce risks of burnout may be more effective if they include an enhancement of workers’ hardiness rather than just a reduction of environmental stressors.


*Journal of Advanced Nursing, 60*(1), 1-9. doi:10.1111/j.1365-2648.2007.04412.x


Appendix A – Participant Information and Consent Form

Hello,

My name is Sara Wilkinson and I am a student in Masters of Nursing program at The University of British Columbia (UBC). I am conducting a study with nurses caring for children and families PICU, NICU, 3M and 2B/3B.

I am inviting you to participate in this study. The survey takes approximately 10 minutes to complete. A return envelope is provided for your convenience. Please complete the survey and return it in the envelope to the drop-off box by September 2nd, 2013. The survey is confidential; all completed surveys will be kept private and will only be available to my supervisor and supervisory committee. Records and demographic information of participants will be used only for research purposes and will be kept in secure storage.

Participants will not benefit from participating in this study; however we hope that results will help researchers understand the effects of stress on nurses. Results may help predict nurses at risk for burnout, allowing aid and support for staff. Participation is voluntary and your job will not be affected in any way. The study is confidential and you may withdraw at any time without penalty.

There are no known risks to participating in this study. However, emotional stress may be evoked while completing the survey because it asks about workplace stressors. These feelings are not unusual compared to what a nurse might experience while working and any negative feelings should be short lived. However, EFAP, a confidential counselling program specialized to provide service to healthcare employees in BC is always available to you. They can be contacted at XXX

Your consent to participate will be indicated by your return of the survey. You may keep this letter for your records to indicate your participation in the study. The results of the research study will provide part of my thesis paper. A summary of the results will be emailed to the unit managers of the participating units.

Your confidentiality will be respected. However, research records and health or other source records identifying you may be inspected in the presence of the Investigator, Health Canada, and the University of British Columbia / Children’s and Women’s Health Centre of British Columbia.
Research Ethics Board (UBC/C&W REB) for the purpose of monitoring the research. No information or records that disclose your identity will be published without your consent, nor will any information or records that disclose your identity be removed or released without your consent unless required by law.

Thank you for helping me through your participation. If you have any questions, please call me at XXXX

This study has been approved by the UBC/C&W Research Ethics Board. If you have any concerns or complaints about your rights as a research subject and/or your experiences while participating in this study, contact the Research Subject Information Line in the University of British Columbia Office of Research Services by Email: RSIL@ors.ubc.ca or Phone: 604-822-8598 (Toll Free: 1-877-822-8598).

Sincerely Yours,

Sara Wilkinson
Appendix B – Demographic Information

Please fill in the blank or circle the answer that is most representative of you.

1. What is your age?: ___________ years

2. What is your gender?:
   a. Female
   b. Male

3. What is your marital status?:
   a. Married
   b. Living common-law
   c. Widowed
   d. Separated
   e. Divorced
   f. Single, never married

4. What is your job status?:
   a. Full-Time (More than 30 hours a week)
   b. Part-Time (Less than 30 hours per week)
   c. Casual

5. How many years have you been nursing?: _____

6. On which unit do you primarily work?:
   a. PICU
   b. NICU
   c. 3M
   d. 2B/3B

7. How long have you been working on this unit?: __________

8. What is your highest educational qualification in nursing?:
   a. Registered Nurse Diploma
   b. Bachelor in Nursing
   c. Masters in Nursing
   d. PhD in Nursing
   e. Other Bachelor or Masters Degree

For each question circle the number which applies:

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. I plan on leaving this unit in the next 12 months.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. I plan on leaving this hospital in the next 12 months.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. I plan on leaving the nursing profession in the next 12 months:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Appendix C - Email Confirmation for Use of ENSS

From: "Susan Elizabeth French, Dr."
Subject: RE: The Nursing Stress Scale
Date: April 5, 2013 at 12:48:18 PM PDT
To: Sara Wilkinson

Hi Sara

My colleagues and I developed the ENSS at McMaster. I was the lead author on the article describing the development and testing of the ENSS. We developed the ENSS, based on the NSS, as the NSS was not addressing fully the sources of stress we were encountering among nurses. I am attaching files containing a copy of the ENSS, scoring instructions, grouping of items within factors when we tested the ENSS and a copy of the article describing the development and testing of the ENSS-you will find information on validity and reliability in the article.

Let me know if you encounter problems or have additional questions. I get a lot of inquiries so the ENSS seems to be widely used.

Cheers

Susan
Appendix D - Expanded Nursing Stress Scale

Below is a list of situations that commonly occur in a work setting. For each situation you have encountered in your **PRESENT WORK SETTING**, would you indicate **HOW STRESSFUL** it has been for you:

<table>
<thead>
<tr>
<th>Question</th>
<th>Never Stressful</th>
<th>Occasionally Stressful</th>
<th>Frequently Stressful</th>
<th>Always Stressful</th>
<th>Does Not Apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Performing procedures that patients experience as painful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Criticism by a physician</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Feeling inadequately prepared to help with the emotional needs of a patient’s family</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Lack of opportunity to talk openly with other personnel about problems in the work setting</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Conflict with a supervisor</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Inadequate information from a physician regarding the medical condition of a patient</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. Patients making unreasonable demands</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. Being sexually harassed</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Feeling helpless in the case of a patient who fails to improve</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. Conflict with a physician</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. Being asked a question by a patient for which I do not have a satisfactory answer</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12. Lack of opportunity to share experiences and feelings with other personnel in the work setting</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. Unpredictable staffing and scheduling</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. A physician ordering what appears to be inappropriate treatment for a patient</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. Patients’ families making unreasonable demands</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16. Experiencing discrimination because of race or ethnicity</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17. Listening or talking to a patient about his/her approaching death</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18. Fear of making a mistake in treating a patient</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>19. Feeling inadequately prepared to help with the emotional needs of a patient</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>20. Lack of an opportunity to express to other personnel on the unit my negative feelings towards patients</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>21. Difficulty in working with a particular nurse (or nurses) in my immediate work setting</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>22. Difficulty in working with a particular nurse (or nurses) outside my immediate work setting</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>23. Not enough time to provide emotional support to the patient</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>24. A physician not being present in a medical emergency</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>25. Being blamed for anything that goes wrong</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>26. Experiencing discrimination on the basis of sex</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>27. The death of a patient</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>28. Disagreement concerning the treatment of a patient</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Question</td>
<td>Never Stressful</td>
<td>Occasionally Stressful</td>
<td>Frequently Stressful</td>
<td>Always Stressful</td>
<td>Does Not Apply</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>----------------</td>
<td>------------------------</td>
<td>----------------------</td>
<td>------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>29. Feeling inadequately trained for what I have to do</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>30. Lack of support of my immediate supervisor</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>31. Criticism by a supervisor</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>32. Not enough time to complete all of my nursing tasks</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>33. Not knowing what a patient or a patient’s family ought to be told about the patient’s condition and its treatment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>34. Being the one that has to deal with the patients’ families</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>35. Having to deal with violent patients</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>36. Being exposed to health and safety hazards</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>37. The death of a patient with whom you developed a close relationship</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>38. Making a decision concerning a patient when the physician is unavailable</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>39. Being in charge with inadequate experience</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>40. Lack of support by nursing administration</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>41. Too many non-nursing tasks required, such as clerical work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>42. Not enough staff to adequately cover the unit</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>43. Uncertainty regarding the operation and functioning of specialised equipment</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>44. Having to deal with abusive patients</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>45. Not enough time to respond to the needs of patients’ families</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>46. Being held accountable for things over which I have no control</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>47. Physician(s) not being present when a patient dies</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>48. Having to organise doctors’ work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>49. Lack of support from other health care administrators</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>50. Difficulty in working with nurses of the opposite sex</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>51. Demands of patient classification system</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>52. Having to deal with abuse from patients’ families</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>53. Watching a patient suffer</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>54. Criticism from nursing administration</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>55. Having to work through breaks</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>56. Not knowing whether patients’ families will report you for inadequate care</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>57. Having to make decisions under pressure</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Appendix E - Instructions for the Scoring of the 57 item ENSS

There are a total of 57 items in the Expanded Nursing Stress Scale. Two items (breakdown of computers and floating to other units/services that are short staffed) that were on the original NSS, under Workload and Conflict with supervisors respectively, did not appear to be related to any of the nine subscales that emerged in the study of Ontario nurses (Susan French, Rhonda Lenton, John Eyles and Vivienne Walters. "An Empirical Evaluation of an Expanded Nursing Stress Scale". *Journal of Nursing Measurement*, Vol. 8, No. 2, 2000). We deleted them from the scale, but other investigators may wish to retain those items as separate indicators. Subsequent applications would be able to assess whether these two items load on the subscales in any situations or among different populations of nurses. The nine subscales that emerged, and the items in each subscale are as follows:

a) Death and Dying - items 1, 9, 17, 27, 37, 47 and 53
b) Conflict with physicians - items 2, 10, 28, 38, 48
c) Inadequate preparation - items 3, 11, and 19
d) Problems with peers - items 4, 12, 20, 21, 22, and 50
e) Problems with supervisors - items 5, 30, 31, 40, 46, 49 and 54
f) Workload - items 13, 23, 32, 41, 42, 45, 51, 55 and 57
g) Uncertainty concerning treatment - items 6, 14, 18, 24, 29, 33, 36, 39 and 43,
h) Patients and their families - items 7, 15, 25, 34, 35, 44, 52 and 56
i) Discrimination - items 8, 16 and 26

In order to compute total stress score, we added together the scores on all 57 items. In order to measure scores on specific subscales, the appropriate items should be added together. In all cases, the category “not applicable” was scored as 0. Addressing missing data depends on the extent of the problem. While several options are available (some more complicated, such as using a regression method to estimate missed scores), we substituted missing values with mean scores for individual items, and proceeded to calculate the subscale score for any individual who had answered the majority of items in any subscale. In the case of the “Death and Dying” subscale, for example, an individual would have to have answered at least 4 of the 7 items that comprise the subscale. Otherwise, the subscale was not constructed, and the individual received was scored “missing” for that specific subscale.

Items were scored so that the higher the score, the greater the frequency of stress on any subscale.

It would be appreciated if you would forward a copy of your analysis of the ENSS to Dr. Lenton, at York University, and to Dr. Susan French at McGill University, so that we are able to monitor the assessment of the ENSS.

Rhonda Lenton, PhD (Sociology)
Susan E. French, R.N., PhD e-mail address: susan.french@mcgill.ca
### Appendix F – DRS-15 and Scoring Key for DRS-15 Dispositional Resilience Scale (v.3)

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Not at all true</th>
<th>A little true</th>
<th>Quite true</th>
<th>Completely true</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Most of my life gets spent doing things that are meaningful <strong>CM</strong></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>By working hard you can nearly always achieve your goals <strong>CO</strong></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>I don't like to make changes in my regular activities <strong>CH(-)</strong></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>I feel that my life is somewhat empty of meaning <strong>CM(-)</strong></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>Changes in routine are interesting to me <strong>CH</strong></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>How things go in my life depends on my own actions <strong>CO</strong></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>I really look forward to my work activities <strong>CM</strong></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>I don’t think there’s much I can do to influence my own future <strong>CO(-)</strong></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>I enjoy the challenge when I have to do more than one thing at a time <strong>CH</strong></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>Most days, life is really interesting and exciting for me <strong>CM</strong></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>It bothers me when my daily routine gets interrupted <strong>CH(-)</strong></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>It is up to me to decide how the rest of my life will be CO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>13</td>
<td>Life in general is boring for me CM(-)</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>I like having a daily schedule that doesn't change very much CH(-)</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>My choices make a real difference in how things turn out in the end CO</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

SCORES ARE REVERSED ON SIX NEGATIVELY KEYED ITEMS: 3, 4, 8, 11, 13, 14

CM = COMMITMENT = SUM (1+4+7+10+13)

CO=CONTROL = SUM (2+6+8+12+15)

CH=CHALLENGE = SUM (3+5+9+11+14)

TOTAL HARDINESS-RESILIENCE SCORE = SUM (CM+CO+CH)

Copyright © by Paul T. Bartone, 2007-2013; all rights reserved. More information is available at: [www.kbmetrics.com](http://www.kbmetrics.com)
### Appendix G – MBI-HSS Sales Receipt

**Sales Receipt for Order 27134**
Placed on Thursday, July 18, 2013 at 12:11 pm (PDT, UTC-7)

**Ship To:**
Sara Wilkinson

**Bill To:**
Sara Wilkinson

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
<th>Quantity</th>
<th>Price/Each</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MBI Reproduction License</strong></td>
<td>MBI-License</td>
<td>1</td>
<td>$228.00</td>
<td>$228.00</td>
</tr>
</tbody>
</table>

**Shipping:**
- Online Product Delivery: $0.00
- Sales Tax: $0.00

**Order Total:** $228.00

Payment method: Visa

This order has been paid in full.
Appendix H – MBI-HSS

Please read each statement carefully and indicate how frequently you ever feel this way about your nursing job.

3 Sample Questions

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Never</th>
<th>A Few times a year or less</th>
<th>Once a month or less</th>
<th>A few times a month</th>
<th>Once a week</th>
<th>A few times a week</th>
<th>Every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I feel emotionally drained from my work.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>I feel used up at the end of the workday.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>I feel fatigued when I get up in the morning and have to face another day on the job.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
Appendix I - Initial Email to Managers

Dear ________,

My name is Sara Wilkinson and I am currently working on my Masters in Nursing at UBC. As a nurse in PICU, my interest is in surveying nurses caring for children and families in order to study their occupational stressors and job outcomes.

I am interested in recruiting participants working in four areas of Children's & Women's Health Centre of British Columbia (C&W): Pediatric Intensive Care Unit (PICU), Neonatal Intensive Care Unit (NICU), and as well as 3M and 2B/3B. The inclusion of these four areas is intended capture variability in job stress.

If possible, I would like to set up a quick 5 to10-minute meeting with you in the next couple of weeks to discuss the study and seek approval of your unit’s participation. Would July 17th or 18th work for you? I look forward to hearing from you.

Sincerely,

Sara Wilkinson
Appendix J - Recruitment Brochure

About the Researcher

I have been a pediatric nurse since 2005 in both Montreal and Vancouver. I have always been interested in nursing self-care, and their overall health. With rates of patient admissions on the rise and increasing patient complexity and intensity, ensuring a healthy nursing workforce is of great importance.

Contact Information

If you have any questions about this study, please contact Sara Wilkinson at (604) 568-3018
Or by email at: XXX

The results of this study will be available in 2014. You can contact the researcher by email if you would like to receive a copy of the results.

The UBC / C&W Research Ethics Board has approved this study

If you have any concerns or complaints about your rights as a research subject and/or your experiences while participating in this study, contact the Research Subject Information Line in the University of British Columbia Office of Research Services:

Email: RSIL@ors.ubc.ca
Phone: 604-822-8598
(Toll Free: 1-877-822-8598).

My faculty supervisor, Dr. Susan Dahinten, can be reached at XXX

University of British Columbia

Nurses Caring for Children and Families

Research Investigator
Sara Wilkinson
Masters Student
School of Nursing
University of British Columbia
About this Project

The purpose of the study is to examine pediatric workplace stressors and the attitudes of nurses caring for children and families at Children's & Women's Health Centre of British Columbia (C&W).

Of particular interest are Registered Nurses (RNs) working in:

Pediatric Intensive Care (PICU)

3R, 3M & 2B/3B and NRTs

Participants must be in permanent positions (part-time/ full-time) and casual positions, who have had direct interaction with infants and children in the past 6 months.

All participants must have worked on their current unit for at least 6 months.

Participant’s Role

I am inviting you to participate in this study. This will involve completing a survey that will be placed in your mailbox on August 19th, and returning it to the drop-off box.

The survey takes approximately 10-15 minutes to complete. A return envelope will be attached to the survey for your convenience, as well as a free pen!

Confidentiality

All completed surveys will be kept private and will only be available to my supervisor and supervisory committee. Records and basic demographic information of participants will be used only for research purposes and will be kept in secure storage.

If there are any questions that participants feel uncomfortable answering or that they would prefer not to answer they may skip over it. Participation in this research is completely voluntary and participants can decide to withdraw from this study at any time.

The survey is confidential, and there will be no identifying data on the surveys. Please do not use your name in order to protect confidentiality.
Appendix K - Recruitment Email from Managers

Email Recruitment Script
Sent on Behalf of the Researcher by the Unit Nurse Managers

Sara Wilkinson BScN
Masters Candidate Nursing

Study Title:
Nurses Caring for Children and Families

_____________________________________________________

E-mail Subject line: UBC study about nurses caring for children and families

Dear Nurses,

Sara Wilkinson, a UBC student, has contacted the unit asking us to tell our nurses about a study she is doing on burnout in pediatric nurses. This research is part of her Master of Science program in Nursing at UBC University.

The following is a brief description of her study. Sara has asked us to attach a copy of the information letter to this email. That letter gives you full details about the study.

If you need more information about the study please read the brief description below and or contact Sara Wilkinson directly at XXX. Taking part or not taking part in this study will not affect your status at C&W.

Sara is inviting you to complete a survey that should take approximately 10-15 minutes to complete. The surveys will be placed in individual mailboxes on August 5th. Completed surveys should be placed in the provided envelope, sealed and placed in the drop-off box.

The UBC / C&W Research Ethics Board has approved this study. If you have any concerns or complaints about your rights as a research subject and/or your experiences while participating in this study, contact the Research Subject Information Line in the University of British Columbia Office of Research Services by email: RSIL@ors.ubc.ca or by phone: 604-822-8598 (Toll Free: 1-877-822-8598).

Sincerely,

XXXXXXXX
Nurse Manager
Appendix L - Recruitment Letter of Information

DATE: July 29th, 2013

RECRUITMENT LETTER OF INFORMATION

Nurses Caring for Children and Families

Investigators:

Principal Investigator: Dr. Susan Dahinten
Student Investigator: Sara Wilkinson

Purpose of the Study

The purpose of the study is to examine the work of nurses caring for children and families at Children's & Women's Health Centre of British Columbia (C&W). Of particular interest are Registered Nurses (RNs) working in: Pediatric Intensive Care (PICU), Neonatal Intensive Care (NICU), 3M and 2B/3B.

Procedures involved in the Research

Surveys will be used to collect data. You will receive a survey in an envelope in your personal mailboxes on the unit. The survey takes approximately 10-15 minutes to complete. A return envelope will be attached to the survey for your convenience, as well as a free pen! Please complete the survey and return it to the drop-off box by September 16th, 2013.

Posters will be posted on the units as reminders; you will also receive a reminder email.

Potential Harms, Risks or Discomforts:

It is not likely that there will be any harms or risks from participating in this study. You do not need to answer any questions that you do not want to answer or that make you feel uncomfortable. You can withdraw from this study at any time. I describe below the steps I am taking to protect your privacy.

Potential Benefits

By participating in this project, you will add to nursing research. An information session will be held following the completion of the study. It will include the theoretical importance of the research, as well as examples of how the results will benefit and/or clarify our understanding of the issues under investigation. Therefore, you will be given
an opportunity to learn about this current topic in nursing research.

Confidentiality

Your confidentiality will be respected. However, research records and health or other source records identifying you may be inspected in the presence of the Investigator, Health Canada, and the University of British Columbia / Children’s and Women’s Health Centre of British Columbia Research Ethics Board (UBC/C&W REB) for the purpose of monitoring the research. No information or records that disclose your identity will be published without your consent, nor will any information or records that disclose your identity be removed or released without your consent unless required by law.

Completed questionnaires will be kept in a locked cabinet at my residence. Computer files of data will be password protected.

Participation and Withdrawal

Participation in this study is voluntary and it is therefore your choice whether to be part of the study or not by completing and submitting the survey. Once the completed survey is submitted, responses cannot be withdrawn from the study, as the information will be anonymous. Their survey will not be identifiable.

Questions about the Study

If you have questions or need more information about the study itself, please contact me at xxx.

The UBC/ C&W Research Ethics Board has approved this study. If you have any concerns or complaints about your rights as a research subject and/or your experiences while participating in this study, contact the Research Subject Information Line in the University of British Columbia Office of Research Services by e-mail at RSIL@ors.ubc.ca or by phone at 604-822-8598 (Toll Free: 1-877-822-8598).
Nurses Caring for Children and Families

August 5th – September 16th, 2013

ATTENTION NURSES!

We are looking for…

- Registered Nurses (RNs) working in PICU, NICU, 3M or 2B/3B for the past 6 months
- Direct interaction with infants and children in the past 6 months.

… we invite you to participate in a research study for a graduate thesis. Be sure to check your mailbox!

For more information, please contact:

Dr. Susan Dahinten
Principal Investigator

OR

Sara Wilkinson
MSN candidate
Email Reminder sent by Unit Managers:

The “Nurses Caring for Children and Families” study is ongoing! Please find the quick, 15-minute survey in your mailbox on the unit. All surveys should be returned to the drop-off box.

Thank you to those of you who have already completed and returned the survey!

If you have any questions about this study, please contact Sara Wilkinson at xxx

Thank you!
Appendix O - Histograms and Scatterplots

Figure 1a) Histogram and Scatterplots for the ENSS, Nursing Stress Scale

Figure 1b) Histogram for the DRS-15, Commitment subscale
Figure 1c) Histogram for the DRS-15, Control subscale

Mean = 11.27
Std. Dev. = 2.029
N = 169

Figure 1d) Histogram for the DRS-15, Challenge subscale

Mean = 9.82
Std. Dev. = 2.686
N = 171
Figure 1e) Histogram for the MBI-HSS, Emotional Exhaustion subscale

![Histogram for Emotional Exhaustion](image1)

Mean = 21.97
Std. Dev. = 10.288
N = 170

Figure 1f) Histogram for the MBI-HSS, Depersonalization subscale

![Histogram for Depersonalization](image2)

Mean = 5.74
Std. Dev. = 4.648
N = 165
Figure 1g) Histogram for the MBI-HSS, Personal Accomplishment subscale

Mean = 35.68
Std. Dev. = 6.838
N = 164
Appendix P – Normality Plots

Hardiness subscale 1:
Commitment

Hardiness subscale 2:
Control

Hardiness subscale 3:
Challenge
Burnout subscale:
Emotional Exhaustion

Burnout subscale:
Depersonalization
Burnout subscale:
Personal Accomplishment