

“GREEN ACRES” OR “GOTHAM”? RURAL JOB SELECTION BY UBC PHARMACY

GRADUATES

by

MARION LOUISE PEARSON

B.Sc.(Pharm.), The University of British Columbia, 1982

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR

THE DEGREE OF

MASTER OF ARTS

in

THE FACULTY OF GRADUATE STUDIES

(Higher Education)

THE UNIVERSITY OF BRITISH COLUMBIA

(Vancouver)

September 2008

© Marion Louise Pearson, 2008

ABSTRACT

There is a pharmacist shortage in British Columbia that is considered particularly acute in rural and remote locations. As a result, the Faculty of Pharmaceutical Sciences at the University of British Columbia has increased enrolment from certain geographic areas, assuming that students will return to these areas on graduation. The main objectives of this study are to determine where pharmacy graduates take their first jobs and the factors that influence their selection of job location. Survey methodology was used, with a written questionnaire being administered to the Class of 2007 after a validation process involving volunteers from the Class of 2006. Mean values of responses on rating scales were compared to assess for statistically significant ($p \leq 0.05$) effects of location size and the demographic variables of age, sex, marital status, and ethnicity.

Of 93 respondents who reported both a primary home town and a job location, only 33 (35%) planned to take jobs where they grew up and only 42 (45%) were taking jobs in the same area of the province. The most common migration patterns were from smaller to larger communities and from all over the province into Metro Vancouver. Those who grew up in Metro Vancouver did not leave. However, the majority of those who did take jobs in other areas of the province had lived there previously. The strongest influences on job location were familiarity with the location, ability to get an enjoyable job, pace of life, proximity to significant others, and career and relationship plans. Smaller community size, ability to practice in the manner desired, and pace of work were more important, and access to cultural, entertainment, and/or social activities were less important to those taking jobs in rural rather than urban areas. There were no findings of practical significance associated with the demographic variables examined.

The selective admission into 12 specially funded seats in the program of students from geographic areas other than the province's one large urban centre is modestly effective in ensuring a supply of pharmacists for these areas. However, the use of geography as a criterion for all seats and an increase in the total number of seats would ensure that the student body is more representative of the provincial population and would address both supply and demand aspects of the pharmacist shortage.

TABLE OF CONTENTS

ABSTRACT.....	ii
TABLE OF CONTENTS.....	iv
LIST OF TABLES.....	vi
LIST OF FIGURES	vii
ACKNOWLEDGEMENTS.....	viii
DEDICATION.....	ix
CHAPTER I: INTRODUCTION.....	1
Purpose of the Study.....	1
Theoretical Framework.....	3
Research Question	4
Research Method	5
Scope and Limitations	6
CHAPTER II: LITERATURE REVIEW	8
Introduction.....	8
Pharmacist Shortage	9
Factors Associated with Rural Career Choice	15
Recruitment to Rural Practice.....	18
Retention in Rural Practice.....	21
Supply and Demand in Postsecondary Education	22
Social Capital Considerations.....	25
Summary.....	27
CHAPTER III: RESEARCH DESIGN.....	30
Introduction.....	30
Variables	31
Research Hypotheses and Model.....	35
Population and Sample	37
Definition of Rurality	38
Questionnaire Design and Validation.....	45
Questionnaire Administration.....	47
Analysis of Data	49
Summary.....	51
CHAPTER IV: FINDINGS	53
Introduction.....	53
Interviews and Pilot Tests.....	53
Participant Characteristics	53
Influence of Home Town Location.....	55
Influence of Family Situation	56
Influence of Leisure Preferences	57
Influence of Financial Factors	57
Questionnaire Pilot Test.....	58

Questionnaires.....	59
Participant Characteristics	59
Job Situation.....	64
Job Location.....	65
Happiness with Location.....	67
Influence of Community Factors and Work Conditions.....	70
Influence of Home Town Location.....	74
Influence of Family Situation	78
Influence of Practicum Locations	84
Influence of Leisure Activities.....	88
Influence of Financial Factors	96
Salary and Debt.....	96
Financial Aid Limiting Job Location Choice.....	100
Financial Incentives Offered by Employers.....	101
Influence of Financial Factors.....	104
Predicting Job Location Type.....	106
Summary.....	109
CHAPTER V: DISCUSSION AND CONCLUSIONS	112
Introduction.....	112
Discussion of Findings	112
Implications for Policy and Practice.....	116
Further Research.....	124
Limitations.....	125
Conclusions.....	126
APPENDIX I: LOCATIONS REPORTED BY PARTICIPANTS	128
APPENDIX II: SAMPLE DOCUMENTS	133
Behavioural Research Ethics Board Certificate of Approval	133
Letter of Initial Contact for Interviews	134
Consent Form for Interviews	135
Interview Outline	137
Questionnaire Cover Letter.....	138
Questionnaire	139
APPENDIX III: RESULTS OF STATISTICAL TESTS.....	150
APPENDIX IV: COMPARISON OF LOCATION INFLUENCES	170
REFERENCES	172

LIST OF TABLES

Table 1	Locations of BC's pharmacists and pharmacies as of February 28, 2008.....	10
Table 2	Canada Census designations for British Columbian communities.....	39
Table 3	Sex, practice type, and location of interviewees.....	54
Table 4	Geographic distribution of the Class of 2007 vs. study participants	60
Table 5	Ethnic background of participants	62
Table 6	Location for first job after graduation	66
Table 7	Influence on job location of community and work factors.....	71
Table 8	Importance to job location of proximity to significant others	79
Table 9	Importance to job location of significant others living elsewhere.....	80
Table 10	Influence on job location of relationship and career factors.....	82
Table 11	Location types and geographic areas of practicum sites	84
Table 12	Influence on job location of practicum locations	87
Table 13	Activities with significant relationship to job location type	89
Table 14	Influence on job location of leisure activities.....	95
Table 15	Relationship of job location type with financial incentives.....	103
Table 16	Influence on job location of financial factors	104
Table 17	Statistical values from logistic regression for predictors of job location	108
Table 18	List of all locations given by participants.....	128
Table 19	Results of statistical tests	150
Table 20	Comparison of strong location influences from interviews and surveys.....	170

LIST OF FIGURES

Figure 1	Research model of characteristics associated with rural job selection	36
Figure 2	Movement between location types from home town to job	56
Figure 3	Relationship status of survey participants	61
Figure 4	Ethnic background of survey participants	63
Figure 5	Type of job intended following graduation	64
Figure 6	Pharmacy district for job location.....	67
Figure 7	Location type for job location.....	67
Figure 8	Happiness with job location.....	67
Figure 9	Reasons for happiness with job location	68
Figure 10	Reasons for happiness with job location in CMAs vs. CAs	70
Figure 11	Influence of previous residence in the community by location type	72
Figure 12	Influence of current residence in the community by location type	72
Figure 13	Type of location of home town and job.....	74
Figure 14	Change of type of location from home town to job.....	75
Figure 15	Pharmacy district of home town and job location	77
Figure 16	Similarity of job location and location at different life stages.....	78
Figure 17	Influence on job location of PHAR 369 location	86
Figure 18	Influence on job location of PHAR 469 location	86
Figure 19	Influence on job location of PHAR 479 location	86
Figure 20	Influence on job location of PHAR 489 location	86
Figure 21	Biplot of job location type and sports activities	91
Figure 22	Biplot of job location type and entertainment activities.....	93
Figure 23	Salary expectations for first job.....	96
Figure 24	Debt level upon graduation.....	97

ACKNOWLEDGEMENTS

The work I have done would not have been possible without the support and assistance of many people along the way. First and foremost are my committee members, Lesley Andres, who taught me much about survey methodology, helped with the demanding process of obtaining ethics approval and funding, and provided compliments and constructive criticism in appropriate measures; Amy Metcalfe, who brought a different perspective to bear on the work and nudged me in new directions; and David Fielding, who helped me straddle the worlds of pharmacy and education. I'm also grateful to Larry Lynd for taking on the work of external examiner. I appreciate the support of all my pharmacy colleagues who took an interest in my progress, but most especially Colleen Brady, who willingly filled in for me when my course schedule conflicted with my teaching schedule, and Tessa Nicholl, who volunteered precious class time in PHAR 499 to facilitate the collection of data. Jen Crothers also assisted with data collection. My family has been behind me all the way, and in particular I appreciate the help of my father, John Pearson, in making the connection to Jim Montgomery, who shared his own work on rural professionals with me, and I appreciate the help of my mother, Betty Pearson, with proof-reading. I also thank my cousin, Patti Holdal, and her family for their hospitality on my travels to interview a participant in Williams Lake. Finally, I can't thank enough my former students and new pharmacy colleagues, graduates of the Class of 2006 and 2007, who were such willing participants and who took a genuine interest in this study.

A Humanities and Social Sciences Small Grant has eased the expense of undertaking this project.

DEDICATION

This is dedicated to my husband, Dr. James Orr, for his unwavering support. Aside from being my biggest cheerleader, Jim was a helpful editor and research assistant and he was my companion on trips around the province to conduct interviews in December 2006. Our travels took us, among other places, to Prince George in minus 37°C temperatures, to Port Alberni between road closures due to winter storms, and through the Monashee Mountains on snow-covered roads to get to Nakusp. Thanks, Jim, for your company all along the way.

CHAPTER I: INTRODUCTION

Purpose of the Study

There is a shortage of pharmacists in British Columbia, which is perceived to be especially severe in rural and remote communities. The undergraduate students in the Faculty of Pharmaceutical Sciences at the University of British Columbia (UBC) are the main source of new pharmacists in the province, but little is known about the paths they take when they leave the university. There are anecdotal reports of UBC pharmacy graduates being reluctant to leave the Metro Vancouver area or being lured across the border into the State of Washington to take high paying jobs. In reality there is little factual information available about where pharmacy graduates go, and no information on what motivates them to choose the particular community where they take their first pharmacy job. The purpose of this research project, therefore, is to identify the job locations of new UBC pharmacy graduates and to determine the factors influencing these graduates' job location choices. In particular, the intention of this study is to focus on those taking jobs in rural locations, and how they might differ from their classmates taking jobs in urban areas.

The intention is that this study would be of practical use in addressing the pharmacist shortage in underserved areas of the province. For example, the results of this study will be of interest to the UBC Faculty of Pharmaceutical Sciences, given its role on the supply side of the equation in the pharmacy labour force. An argument could be made that it is not the role of the Faculty to respond to the human resource needs of pharmacy employers; however, the Faculty does have close ties to the profession and understands the mutual benefits in maintaining these ties. To give just one example, the Faculty relies heavily on practitioners to assist in educating students, particularly through the practicum courses in the undergraduate

program. Thus, there is a willingness in the Faculty to assist the profession to find solutions to the pharmacist shortage.

A general increase in enrolment would be helpful, but the Faculty currently has very limited capacity to expand due to space constraints that will persist unless current efforts to obtain additional space, ideally a new building, are successful. Nevertheless, the Faculty recently accepted provincial funding for 12 extra seats per year, beyond the usual enrolment of 140, to help address the shortage. On the assumption that students whose home towns are outside the Lower Mainland are more likely to take jobs outside the Lower Mainland, these 12 seats have been filled with applicants from the Vancouver Island, Northern BC, and Kootenay/Okanagan regions. Until now, no evidence has been collected to determine whether the assumption underlying this practice is correct. Furthermore, in some years the number of qualified applicants from the target areas has been limited, making it challenging to fill these seats in the desired manner. In addition to taking extra students, the Faculty has implemented policies to ensure that the majority of students do some of their practicum course work in locations outside the Lower Mainland, which may encourage graduates to consider taking jobs in these locations. Again, until now, no evidence has been collected to determine whether there is an association between practicum location and job location. Thus, an understanding of the effect of home town and practicum location might be useful in determining the Faculty's recruitment, admissions, and educational policies aimed at encouraging more students to consider taking pharmacy jobs in rural areas.

Results of this study may also be of interest and possible use to the pharmacy employers, health authorities, and professional organizations that are at least partially in control of the demand side of the equation in the pharmacy labour force. They are

responsible for issues such as work conditions and financial incentives that may be important in the job location decision of new pharmacists. Thus, an understanding of how these factors influence job location might usefully inform strategies to recruit pharmacists to underserved areas.

Finally, it is possible that the results of this study will be of interest and use to other professions and in other parts of the country or areas of the world experiencing the same difficulty of meeting the health human resource needs of rural and remote communities. Indeed very little of the literature that informed this work was related to the pharmacy workforce. Rather, the emphasis was on the physician workforce, with occasional mentions of other health care professionals, mainly nurses. Also a great deal of the work in this area has been conducted in Australia and the United States, although there is some literature from Canada. Nevertheless, the issues seem to be very similar across these professions and countries, so the findings of this study may be equally broadly applicable.

Theoretical Framework

With the present limitations on capacity in the pharmacy program, there is substantial competition for admission. The application of Finnie's (2005) supply and demand model was considered useful in exploring issues regarding access to postsecondary education in this competitive environment, given differences in educational aspirations and achievements of urban vs. rural youth (Andres & Looker, 2001; Alasia, 2003) and the connection between home town and job location (Easterbrook et al, 1999; Ward, Kamien, & Lopez, 2004; Rourke, Incitti, Rourke, & Kennard, 2005). The concept of social capital was also felt to be relevant to this study, given that one's social networks and the norms within those networks might well have an influence on educational aspirations and achievements and job location

decisions. In particular, the strong social networks that rural youth tend to enjoy (Dyk & Wilson, 1999; Looker, 2001) and the fact that encouragement of higher education is less of a norm in rural families (Hansen & McIntyre, 1989) may reduce the likelihood of leaving home to obtain a university education. An understanding of the challenges rural youth face in becoming pharmacists and that rural pharmacists face in their practices would be useful in devising recruitment and retention strategies aimed at reducing the pharmacist shortage in rural areas. If rural youth are the future rural pharmacists, then they may need assistance overcoming their educational and social capital constraints, such as poorer academic preparation and the necessity of living at a distance from social networks, to succeed in obtaining the necessary university education. If pharmacists are to be enticed to come to and to stay in rural communities, it may be necessary to mitigate similar constraints of rural practice, such as lack of access to continuing education and professional isolation.

Research Question

The intention of this study is to answer the research question, “What influences the decision of a pharmacist to take a job in a rural area?” The literature suggests that the main influence is a rural upbringing (Easterbrook et al, 1999; Ward, Kamien, & Lopez, 2004; Rourke, Incitti, Rourke, & Kennard, 2005); however, not every student with a rural background takes a rural job on graduation. Rather, the move away from home to attend university is a permanent move for some. Little is known about what differentiates those who return home from those who do not. Perhaps their families have also moved away or perhaps there is familial conflict they wish to avoid. By the time they graduate from university, students may have the needs of spouses and children to consider when choosing a job location. Perhaps they enjoy the cultural amenities and leisure activities urban communities

have to offer. The literature further suggests that experiential learning in a rural setting might encourage students to consider taking a job in a similar community (Carter, 1987; Brown & Birnbaum, 2005; Rourke et al., 2005), and employers use financial incentives and good working conditions to attract pharmacists to underserved communities. Again, little is known about what type of person might respond to these strategies.

Simply identifying the factors that influence the job location decision would be a useful beginning; however, it would be more helpful to quantify the extent of the influence of each factor on the job location decision, and to look for patterns that might predict which individuals are likely to take a job in a rural community. Thus, all of these things were attempted in this study. The specific questions this study addressed include the following:

1. Where do UBC pharmacy students plan to take their first jobs when they graduate?
2. To what extent is a rural background associated with rural job selection?
3. To what extent is exposure to rural practice during undergraduate practicums associated with rural job selection?
4. To what extent are other factors, such as working conditions, family dynamics, leisure preferences, financial situation, and demographic variables, associated with rural job selection?
5. What combination of factors best predicts likelihood of rural job selection on graduation?

Research Method

This study was conducted by means of a survey to obtain the data, primarily quantitative, necessary to answer the questions of interest. The quantitative emphasis was particularly important, so that any recommendations coming out of the study would have credibility in the pharmacy world, where the randomized, double-blinded, placebo-controlled

trial with statistical significance at the $p \leq 0.05$ level is considered the “gold standard.”

Careful thought was given to the design of the survey to maximize the response rate and the quality of the data. For example, the survey was conducted while the students were still in the Faculty, when they might be more inclined to participate but before they had actually entered the workforce. Therefore, the questionnaire was designed so it could be completed by those who had not yet committed to their first job, but was distributed as late as possible in the school year, by which point most students would, in fact, have made a job commitment.

Scope and Limitations

This study is restricted to an assessment of the first job locations, and the factors influencing the selection of those locations, for one graduating class from the UBC Faculty of Pharmaceutical Sciences. The assumption was made that this class was typical in terms of the job locations they chose and their decision-making processes in selecting a location. This further assumes that pharmacy workforce needs are fairly consistent from year to year, so the job locations available to this class were typical.

The data were collected approximately four months before the participants would receive their licenses and actually begin practice. Accordingly, some might not yet have made a job location decision, others might change their minds before starting work, and a few might be unsuccessful on the licensing exams and unable to take the jobs they had intended. Also, no data were collected regarding plans for changing locations in the future. Thus, the issue of retention, potentially as important as recruitment in remedying the shortage of pharmacists in rural areas, was not addressed in this study. Future location plans would also be particularly useful to know for those taking residency positions, as residents have little choice of locations for the residency program and will, in fact, be making their first real

location decisions in a year. Similarly, those being sent to underserved areas because of return of service conditions on scholarships have little choice about their locations for their first two or three years of practice.

The questionnaire used to collect the data for this study was quite comprehensive, so the findings from this study are fairly broad. However, they may be lacking in depth as few opportunities were provided for participants to write explanatory comments or provide more detail about their responses. Nevertheless, this study provides a thorough review of the relevant literature and some statistically sound findings to support recommendations aimed at solving the shortage of pharmacists in rural areas.

CHAPTER II: LITERATURE REVIEW

Introduction

The impetus for this study was the desire to have a better understanding of the nature of the pharmacist shortage in British Columbia, particularly in rural and remote areas, and of the steps that might usefully be taken to recruit and retain pharmacists in underserved communities. The first foray into the literature was therefore aimed at obtaining a clearer understanding of pharmacy human resource issues, including the nature and extent of the shortage and the factors affecting the supply of and demand for pharmacists, especially in rural communities.

This was followed by a search for information regarding rural career choice by health professionals, to gain an understanding of the characteristics of those who took jobs in rural and remote locations. In particular, confirmation was sought of the common assumption that those who grew up in small towns were likely to take jobs in the same or similar locations. Additionally, the literature was reviewed for details regarding recruitment and retention strategies to attract and keep pharmacists in small towns. Given the paucity of information specific either to pharmacists or to British Columbia, the search for relevant literature was extended to other health professions and to other parts of the world with similar geographic and social conditions. For example, in the absence of information about pharmacists, it seemed reasonable to turn to the significant body of literature about physicians, given the complementary role of the two professions in the provision of health care and the similarity in their education, which is typically centred in large urban universities with competitive admissions processes and with significant emphasis on skill development through experiential learning. Also, it seemed reasonable to turn to information about other provinces

and the rather larger body of literature from the US and from Australia. These locations are reasonably similar in population distribution, with a significant portion of the population living in relatively few large urban centres and the remainder living in much smaller communities scattered over a large land area. They also have reasonably similar social structures and standards of health care.

Finally, given the economic and social aspects of the decisions to attend university and to take a job in a particular community, it seemed that the economic concepts of supply and demand and social capital theory might be useful underpinnings for this work. Hence, an effort was made to locate literature that would be applicable to Finnie's supply and demand model of access to postsecondary education and that would expand on Bourdieu's and Coleman's foundational work on social capital, with emphasis on differences related to rural vs. urban life, and on recruitment and retention strategies aimed at solving the shortage of health professionals in rural areas.

Pharmacist Shortage

As of February 28, 2008, there were 4,041 licensed pharmacists living in BC. In addition, there were 981 licensed community pharmacies and 69 licensed hospital pharmacies where they might find employment (E. Farkas, personal communication, February 28, 2008). The proportion of these pharmacists actually practicing either full or part time is not known. What is known, though, is that the demand for pharmacists exceeds the supply in both community and hospital settings. The estimated vacancy rate in hospital pharmacies is 10%, with more than half the positions outside of Metro Vancouver (Naumann, 2004). A similar vacancy rate has been reported in community pharmacies, with the need being greater in the East Kootenay, Northern Interior, Peace-Liard, and Central

Vancouver Island regions than in Vancouver, Richmond, and the North Shore (Chua, 2002). Thus the pharmacist shortage is province-wide, but is perceived to be worse in rural and remote areas.

In an effort to confirm this perception, the locations of the province’s pharmacists and pharmacies were classified according to census designations. These findings are summarized in Table 1. Among the pharmacists, 2967 (73.4%) were working in large urban areas (herein referred to as Census Metropolitan Areas or CMAs), 649 (16.1%) were in smaller urban areas (Census Agglomerations or CAs), and 425 (10.5%) were in rural areas (Rural and Small Towns or RSTs) (E. Farkas, personal communication, February 28, 2008). Compared to the distribution of pharmacies, it does appear that there is an oversupply of pharmacists in CMAs, and an undersupply in CAs and RSTs. However, it is possible that the pharmacies in CAs and RSTs are smaller and need fewer employees, which would account for some of this inequity in distribution.

Table 1. Locations of BC’s pharmacists and pharmacies as of February 28, 2008

Licensees	# in CMAs		# in CAs		# in RSTs	
	n	%	n	%	n	%
Pharmacists	2967	73.4	649	16.1	425	10.5
Community Pharmacies	629	64.1	196	20.0	156	15.9
Hospital Pharmacies	39	56.5	19	27.5	11	15.9

Comparing the distribution of pharmacists and pharmacies to the general population of the province, with approximately 66% in CMAs, 15% in CAs, and 19% in RSTs (BC STATS, 2006b), it again seems that there is an oversupply of pharmacists in CMAs and an undersupply elsewhere, particularly in rural areas. However, there is also a modest

oversupply of pharmacies, especially hospital pharmacies, in CAs, and an undersupply in both CMAs and RSTs. One explanation for this is that it may be possible to have fewer, but larger, pharmacies to serve the needs of the population in CMAs, while facilities may not be financially viable in RSTs due to the small population. Stratton (2001), for example, describes some of the economic challenges faced by rural community pharmacies, including low volumes and high shipping and labour costs. Thus, people living in RSTs with no pharmacy must travel to a larger community, which would most often be a CA, to obtain pharmacy services.

While the focus of this study is the supply of pharmacists in rural and remote areas, the need in urban areas should be acknowledged. Hospital pharmacies in the Metro Vancouver area, for example, have vacancy rates as high as 50%, with rates in the 30 to 40% range being reported by several hospitals in Vancouver's suburbs, and positions remaining unfilled for as long as a year (Cheng, 2006). Reasons for these vacancies include maternity leaves, transfers to administrative positions in the three Health Authorities serving the region, and creation of new positions due to expansion of facilities. Where pharmacists actually left hospital practice altogether, the most common reason given was to take a job in community pharmacy (Naumann, 2004). However, the consequences of the shortage are arguably more severe in rural and remote pharmacies. In large urban hospitals, hours of operation and provision of clinical services may have been reduced; in small rural facilities, where there is often only one pharmacist position, pharmacies have actually been closed when positions remained vacant for extended periods. Between 2000 and 2003, this occurred in four hospitals, three in Northern BC and one in the Interior (Naumann, 2004).

The shortage of pharmacists is expected to persist. While BC was fortunate to enjoy the largest increase in the pharmacist workforce (at 68%) of any province or territory in the 10 years between the censuses of 1991 and 2001 (Canadian Institute for Health Information, 2007), it is anticipated that the demand for pharmacists in BC will continue to grow. One projection suggests that the general demand for health professionals in BC will grow by 3.5% annually through 2015 (BC Ministry of Advanced Education, 2007). Another projection, specific to pharmacists, suggests that 340 new jobs are expected in BC over the five years between 2006 and 2011 (BC STATS, 2007). This represents an overall increase of 8.6%, or an annual growth rate of 1.7%. The largest percentage growth is expected to occur in the Northeast Development Region, at 3.4% annually, but the largest increase in number of positions, from 2,590 to 2,830, is expected in the Mainland/Southwest Development region, at an increase of 240 jobs overall or 48 new jobs per year (BC STATS, 2006a).

The demand for pharmacists is driven in part by an increase in the volume of prescriptions being dispensed, fuelled by population growth, the aging of the population, and the availability of new drug therapies. In fact, the majority of the 10 to 13% per annum increase in prescription drug expenditure in BC between 1996 and 2003 was attributable a general increase in utilization of drugs and not to inflation in drug prices or the selection of more expensive options when a choice of drugs existed (Centre for Health Services and Policy Research, 2005). Other factors affecting the demand for pharmacists include an expansion of the professional role of the pharmacist, an increase in the number of pharmacies, and an increase in hours of operation (Human Resources Development Canada, 2001). To give a few examples of long hours of operation in community practice, of the 57 Shoppers Drug Mart locations in Metro Vancouver, 9 are open 24 hours a day and 20 are

open until midnight, 7 days a week (Shoppers Drug Mart, 2008); the 44 London Drugs stores in BC are all open 7 days a week, from 9 a.m. to 9, 10, or 11 p.m. on weekdays, with slightly shorter hours on weekends (London Drugs, 2008); and of 54 pharmacy departments in Save-on-Foods stores in BC, 48 are open 7 days a week and 37 of these are open from 8 a.m. to 10 p.m. at least 6 days a week (Save-on-Foods, 2008). In addition, it is anticipated that there will be more employment opportunities available to pharmacists in management positions and in the insurance and pharmaceutical industries (BC Work Futures, 2005), exacerbating the shortage in traditional practice environments.

Meanwhile, the supply of pharmacists is affected by attrition due to retirement, limits on the capacity of pharmacy programs at universities, and patterns of migration of Canadian-trained pharmacists and immigration of foreign-trained pharmacists (Human Resources Development Canada, 2001). In BC, for example, in the year from March 1, 2006 to February 28, 2007, 210 pharmacists gave up their licenses, either temporarily or permanently, and 300 new pharmacists were licensed, including 135 graduates from the University of British Columbia, 97 from elsewhere in Canada, and 68 from outside Canada (College of Pharmacists of British Columbia, 2007a). A detailed study of the migration of pharmacists by the Canadian Institute for Health Information (2007) showed that about 29% of BC's pharmacists moved between communities in the 5-year period from 1996 to 2001. About two-thirds of the moves were intraprovincial, with the remainder attributable to interprovincial and international migration into BC. An analysis of the moves between urban and rural areas by intra- and interprovincial migrants showed that the net movement was from urban into rural areas. The number was very small though, with a net gain of 120 pharmacists Canada-wide into rural areas between 1996 and 2001 (Canadian Institute for

Health Information, 2007). This same study reported that 5% of BC's pharmacists in 2001 were 60 years of age or older, so possibly considering retirement, and that 57% of BC's pharmacists were women, thus possibly not available for full-time work due to childcare responsibilities. In the United States in 2000, for example, 25.6% of female pharmacists worked fewer than 30 hours per week, compared to 9.9% of male pharmacists (Mott, Doucette, Gaither, Pedersen, & Schommer, 2002).

The emigration of pharmacists to lucrative jobs in the United States is also a possible contributing factor to the shortage of pharmacists in Canada. In a report by the Canadian Pharmacists Association (CPhA) on human resources in the pharmacy profession in Canada, "one interviewee suggested that for the foreseeable future between one quarter and one third of University of British Columbia graduates would likely end up working in the United States, chiefly in the state of Washington," (Human Resources Development Canada, 2001, p. 34). A position paper on the pharmacist shortage from the British Columbia Pharmacy Association (BCPhA) estimates the rate of loss of UBC graduates to the US at 15 to 20% per year (BC Pharmacy Association, 2002). These estimates are at odds with the finding of Andres and Licker (2005) that 10 years after graduating from high school in BC, only 3% of those who continued on to complete university degrees were living in the United States.

It should be noted that the term "shortage" has been used here in the simple sense of supply being insufficient to meet demand. The extent to which this shortage has led to excessive pharmacist workloads or inability to meet patient care needs is not clear. For example, it is unlikely that many people actually require access to a community pharmacist in the middle of the night, so the need for pharmacies to be open and staffed 24 hours a day seems questionable.

Nevertheless, workload and staffing issues were by far the most common concerns of pharmacists surveyed regarding the Blueprint for Pharmacy that is currently being developed to guide the evolution of pharmacy practice in Canada (Canadian Pharmacists Association, 2008a). There is also some evidence that excessive workload has contributed to pharmacists making dispensing errors (College of Pharmacists of British Columbia, 2007c) and failing to identify drug-drug interactions (Malone et al, 2007). In response to these types of concerns, some jurisdictions have attempted to create standards for pharmacist workload based on a maximum number of prescriptions per day (North Carolina Board of Pharmacy, 1997; Pharmacists Board of Queensland, 2007) or maximum number of technicians supervised (College of Pharmacists of British Columbia, 2006b).

In reality, appropriate pharmacist workload depends on many factors, including pharmacist work experience, technician abilities, dispensary design, and the nature of the prescriptions received (Pharmacists Board of Queensland, 2007), not to mention expected scope of practice, which varies widely between pharmacies and is evolving. Consequently, the College of Pharmacists of BC has abandoned its former guidelines on pharmacist:technician ratio in favour of simply requiring pharmacy managers be responsible for “ensur[ing] that pharmacist and pharmacy support person staffing levels are commensurate with the workload volume and patient care requirements at all times” (College of Pharmacists of British Columbia, 2006a).

Factors Associated with Rural Career Choice

A shortage of rural practitioners is unique neither to the profession of pharmacy nor to BC. Accordingly, rural career choice has been studied in physicians, nurses, and other allied health professionals, and in various locations in Canada, the United States, and

Australia, although rarely in pharmacists and rarely in BC. The greatest body of literature concerns rural physicians, within which the only consistent finding is that a rural upbringing is associated with the decision to practice in a rural area (Easterbrook et al., 1999; Ward, Kamien, & Lopez, 2004; Rourke, Incitti, Rourke, & Kennard, 2005). For example, Easterbrook et al. (1999) found that family medicine graduates from Queen's University in Ontario raised in rural areas were 2.3 times more likely to take a rural position than their urban-raised colleagues. Ward et al. (2004) found that 92% of graduates of the University of Western Australia practicing family medicine in rural areas had lived in a rural area previously in their lives. Previous residence in a rural area was also the primary factor associated with rural pharmacy practice in Australia (Harding, Whitehead, Aslani, & Chen, 2006).

Other personal characteristics are generally not predictive of rural practice. Easterbrook et al. (1999) studied the influence of age and sex, while Ward et al. (2004) included other variables, such as ethnicity, parental occupation, and personality and social attitude test scores. No correlation was found between any of these characteristics and rural career choice of family physicians. Amongst optometrists in the United States, however, attitude to urban environments, when combined with rural background, was a good predictor of rural practice (Kegel-Flom, 1977). Similarly, attitude to urban living, access to social and professional support networks, opportunities for advancement, and desire to work in underserved populations were important factors in the job location choice of Australian dietitians (Heaney, Tolhurst, & Baines, 2004). Also, the ethnicity of American pharmacy students is reportedly associated with preference for hospital vs. community practice (Carvajal & Hardigan, 1999), so it is possible that ethnicity might be associated with other

preferences, including rural vs. urban location. However, location preference was not evaluated in this study, and the ethnic groups involved (Non-Hispanic Whites, African Americans, Hispanics, and Asians) do not correspond well to the common ethnic groups in BC.

Reports on the influence of rural educational experiences on rural career choice are conflicting. Some studies have found a correlation between exposure to rural practice during medical training and rural career (Carter, 1987; Brown & Birnbaum, 2005; Rourke et al., 2005). Similarly, exposure during training to underserved areas, including inner city, rural, and third world locations, was found to be associated with subsequent careers in similar locations (Tavernier, Connor, Gates, & Wan, 2003). However, other studies have shown either no association between rural rotations during training and subsequent rural practice (Easterbrook et al., 1999), or an association between rural rotations and willingness to take locum but not permanent positions in rural areas (Woloschuk & Tarrant, 2002).

One distinction between pharmacists and physicians, nurses, and many other health professionals, is the retail environment in which the majority of pharmacists work. Thus, the availability of business opportunities has been suggested as a positive influence on the recruitment of pharmacists to rural areas (Harding et al., 2006). The same article also indicates, though, that pharmacies located in communities with physician shortages may struggle financially. Recent news that the small BC towns of Princeton and Armstrong are both expecting to lose all but one of their physicians by mid-2008 (McIntyre, 2008; Austin & Hunter, 2008) will not likely have been welcomed by the pharmacists in those communities.

Recruitment to Rural Practice

Various measures might be helpful in recruiting practitioners to rural areas. Given the connection between rural upbringing and rural practice, a useful first step would be for universities to enhance their efforts to attract students from rural areas. This strategy would take time to make a difference, but has been successful in increasing the number of rural physicians in the US (Rabinowitz, Diamond, Markham, & Paynter, 2001) and Australia (Dunbabin & Levitt, 2003), and underlies the expansion of UBC's medical school through satellite locations, particularly at the University of Northern British Columbia (UNBC) in Prince George (Kent, 2002). However, one cannot expect all students of rural origin to subsequently take rural jobs. As Andres and Licker (2005) have demonstrated, there is net migration of young adults with university degrees from rural to urban areas in BC.

Rourke (2005) also suggests that admissions processes should be reviewed to ensure they are not biased against students from rural areas, who may not have had the same educational or extracurricular opportunities as their urban counterparts and whose experiences and attitudes may differ from admissions interviewers, primarily of urban backgrounds, who will be assessing them. Rourke (2005) has also gone so far as to suggest affirmative action measures, such as adjusting grade point averages of students from rural areas. A very recent study in Alberta, however, indicates that such measures may not be necessary, as rural medical school applicants in that province are, in fact, admitted in proportion to their application numbers (Wright & Woloschuk, 2008).

Financial aid programs aimed at rural students might assist recruitment, given that medical students with rural backgrounds report higher levels of debt and increased reliance on part-time and summer employment to support themselves (Kwong et al., 2005). Loan

forgiveness schemes or scholarships with rural service obligations may also facilitate recruitment; however, there is evidence to suggest that physicians going to rural areas to fulfill service obligations do not stay as long as those going voluntarily (Pathman, Konrad, & Ricketts, T. C. 3rd, 1992). High rates of buyout and failure to fulfill the service obligation have also been reported in several financial aid programs (Sempowski, 2004).

Many other types of financial incentives have been offered to entice physicians to rural locations, including guaranteed minimum income contracts, travel allowances, and financial support for continuing education. In fact, the provision of financial incentives is the most widely used health personnel recruitment strategy (Pong & Russell, 2003). Yet the effectiveness of this strategy has been questioned. As Barer and Stoddart (1999) point out, financial factors are not a strong influence on practice location and rural shortages persist despite all the money invested. These authors also suggest that the main beneficiaries of financial incentives are those who might choose to work in rural areas anyway. It is possible, however, that financial incentives have helped minimize the shortage of rural professionals.

Given the possible influence of rural educational experiences, university programs should provide opportunities for exposure to rural practice. These programs may be of greatest value in increasing the likelihood of students with rural backgrounds pursuing careers in rural areas. One study showed, for example, that medical students participating in a rural practicum experienced a positive change in their attitude towards rural practice, but the largest change in attitude occurred amongst the students with rural backgrounds (Peach & Bath, 2000). Another study showed that, among medical students with rural backgrounds, those who received some rural training were more than twice as likely to enter rural practice than those who received all of their training in urban settings (Rourke et al., 2005). The

structure of rural educational experiences may also make a difference to their recruitment value. For example, the longer the duration of the rural educational experience, the more likely it is that graduates will choose to work in a rural area (Wilkinson, Laven, Pratt, & Beilby, 2003). There is also some evidence that students involved in an interdisciplinary rural practicum, with medical, nursing, pharmacy, and other students working together as a team, are more likely to choose to work in a rural area upon graduation (Rhyne, Daniels, Skipper, Sanders, & VanLeit, 2006).

Recruitment strategies that focus on job satisfaction and lifestyle issues might also be useful. Pong and Russell (2003) suggest that rural practice may have the disadvantages of professional and social isolation, long work hours, and difficulty obtaining holiday relief. They also list other concerns including educational opportunities for children, career opportunities for spouses, and access to cultural and other amenities. Thus, provision of locum coverage, support to attend continuing education events, assistance for family members, and similar measures might all be helpful in recruiting professionals to rural areas. However, these strategies will need to be individualized to the people being recruited and to the communities hoping to attract them. As Pong and Russell (2003) point out, these issues tend to be personal and variable, so are difficult to address through government programs or public policies.

Whatever form they might take, recruitment strategies should emphasize the positive aspects of rural life and practice. There is a tendency to view rural communities as deficient in many ways. For example, rural communities may be seen as isolated, lacking in services and amenities, and lacking in educational and job opportunities. However, rural communities can also offer better social cohesion, less crime, access to recreational activities, and other

advantages (Looker, 2001). Health professionals might be attracted to the independence and the broader scope of duties found in rural practice. Rural pharmacists have noted, for example, that they do more diagnosing (Harding et al., 2006).

Retention in Rural Practice

This study focuses on the factors that influence the job location decision of pharmacy graduates. That is, the emphasis here is on the recruitment aspect of attracting practitioners to underserved areas. However, understanding the factors that influence retention is essential in any long-term solution to the shortage in a particular area. The first finding of importance is that retention appears to be unrelated to the degree of shortage (Pathman, Konrad, Dann, & Koch, 2004). Thus, recruitment is more critical than retention in addressing a shortage. Nevertheless, it would be foolish to ignore retention. As might be suspected, job satisfaction plays a role here. Pharmacists working in rural areas of Australia cited the varied nature of their work, their relationships with local physicians and other colleagues, and their relationships with their patients as positive retention factors (Harding et al., 2006). They felt that their patients were more willing to take their advice and that their close working relationships with physicians had the potential to improve patient care. A survey of Canadian pharmacists working in rural areas found that those who had been in practice for at least five years, were married or in a common-law relationship, and had children living at home were more likely to intend to remain in the community (Woodend et al., 2004). This study also showed that the intention to stay was associated with satisfaction with professional and personal aspects of working and living in the community.

Supply and Demand in Postsecondary Education

Given that a Bachelor's degree is needed to become a pharmacist, issues of access to postsecondary education are relevant to this study. A deeper understanding of the barriers to students from rural areas would help inform the recruitment efforts mentioned earlier. The simple principles of supply and demand have been proposed as a useful model for exploring these issues (Finnie, 2005). Finnie (2005) suggests the norm in Canada is that demand for postsecondary education exceeds the supply of seats, leading to rationing by admission requirements. This is certainly the case for the pharmacy program at UBC, where there are typically three to four times as many qualified applicants as there are seats. Applicants from rural areas may not receive an equitable share of the available supply for a variety of reasons. The high school education needed to be academically competitive may be more difficult to obtain in rural communities, where school facilities and course offerings tend to be more limited than in urban areas (Looker, 2001). While it has been shown that rural students do receive an equivalent general education, with only a 2% decrement compared to urban peers in standardized test scores in reading, mathematics, and science (Frenette, 2007), even a small difference such as this will have a detrimental effect on admissions where supply is very constrained.

In the case of pharmacy, volunteer activities and relevant work experience are also considered in the admissions process, and here again rural students may be disadvantaged, depending on the nature of the local economy. A small town with a mixed economy or one that attracts tourists will likely have many more job opportunities for youth than a town of similar size that relies on a single industry. There is considerable variation across the country and over time, but in BC in 2005, the unemployment rate for those between 15 and 24 years

of age was 9.5% and was, in fact, slightly lower overall for rural than for urban youth (Government of Canada, 2006). What these figures do not provide, though, is any information on the relevance of the type of work available, which affects its value in the admissions process. Work experience in a pharmacy rather than some other type of job, would obviously be of greater value for a prospective pharmacist. Again, access to this kind of experience would be strongly affected by the exact nature of the local economy, but it has been shown that, in general, rural youth in BC are more likely to be employed in resource industries or manufacturing than in business or service industries (BC STATS, 2000).

In addition to potentially experiencing greater barriers to access related to constrained supply, students with rural backgrounds may also be underrepresented on the demand side of the equation. Rural youth tend to have lower high school completion rates (BC Ministry of Education, 2007b). Aboriginal youth, who are somewhat more likely to live in RSTs than non-aboriginal youth (Statistics Canada, 2008), have particularly low high school completion rates (BC Ministry of Education, 2007a). Rural youth also have lower expectations for, and lower achievement of, postsecondary education than their urban counterparts (Andres & Looker, 2001; Alasia, 2003). The portion of Andres and Looker's work (2001) relevant to BC showed that 26% of rural youth in BC expected to earn a Bachelor's degree but five years after completing high school only 17% had graduated from university. By comparison, 32% of urban youth expected a similar level of education and 32% had graduated in the same time frame.

There are many possible reasons for these differences in aspiration and achievement, but one contributing factor is certainly the fact that rural youth have little choice but to leave home to acquire a postsecondary education, a move they may find emotionally and

financially challenging. In BC, for example, those interested in becoming pharmacists must either come to Vancouver to attend UBC or leave the province to obtain their degree at one of the other nine schools of pharmacy across the country. In general, demand for postsecondary education declines as travel distance increases. Frenette (2002) has shown that those living more than 80 km from a university are only 58% as likely to attend university as those living within 40 km. In 1996, when several colleges in BC had already been transformed into university colleges and UNBC had opened its doors, 23.2% of the population still lived at least 80 km from a university (Frenette, 2002). The presence of a local university may also contribute to a decline in demand for specialized programs such as pharmacy. When UNBC opened, university participation by Prince George youth increased from 18.5% to 26.8% over a 5-year period (Frenette, 2002), with the possible result that some students who might previously have come to Vancouver to attend UBC simply altered their career aspirations and chose programs that were available locally.

In the case of pharmacy, there might at least be a hometown pharmacy job to come back to; rural youth with other career aspirations may well find that the work they would like to do is only available in urban centres so they must be prepared for the fact that their move to attend university will be a permanent move away from home (Malatest & Associates, 2002). Even for pharmacy, the availability of a hometown job will depend on the nature of the location. In BC, for example, there are a number of RSTs with populations over 1000 that have no pharmacy and only 5 RSTs with populations of less than 1000 that do have a pharmacy, these being Alert Bay, McBride, Midway, Quathiaski Cove, and Queen Charlotte City (E. Farkas, personal communication, February 28, 2008; BC STATS, 2006b; BC STATS, 2006c). These are all remote locations with additional people living nearby, so each

pharmacy is serving a population beyond the immediate community. Even so, there may be insufficient business to justify hiring additional pharmacists.

Social Capital Considerations

The term social capital refers to the relationships one has with others that can be used to advantage. Lin (2001, chap. 1) describes social capital as a resource existing in social networks which one can invest in and draw on for economic benefit, similar to the human capital existing in one's knowledge and skills and the cultural capital existing in one's social background. Not everyone agrees with this concept of social capital, however. Halpern (2005, chap. 1) distinguishes between those who see social capital as a "micro-level" concept pertaining to individuals and those who see it as a "macro-level" concept pertaining to communities or even nations. As an example of the latter, Warren, Thompson, and Saegert (2001, p. 1) view social capital as a "collective asset, a feature of communities, rather than the property of individuals." However, Bourdieu (1983/1986, p. 248) originally conceived of social capital as "the actual or potential resources which are linked to possession of a durable network of...relationships" that entitle the members of the network to "credit." While not citing Bourdieu, Coleman (1990, p. 305) later similarly suggested that social capital is a resource derived from relationships between people that "can be used by agents to realize their interests." It is in the more individualistic sense described by these two early scholars in the field that the term social capital will be used here. Also used here is Halpern's more recent conception of the components of social capital, namely that social capital consists of social networks along with the norms and sanctions within these networks (Halpern, 2005, p. 4).

Like other forms of capital, social capital is not evenly distributed in the population, which invites the question of whether social capital is useful in achieving social mobility or, rather, contributes to social reproduction. Bourdieu for example, with his interest in “the persistence of social class and other entrenched forms of inequality” (Field, 2003, p. 13), suggested that an individual’s social capital not only depends on the size of his or her social network but also on the amount of economic and cultural capital possessed by the members of the network, and that exchanges within the network function to reproduce the group (Bourdieu, 1983/1986, p. 249-250). Conversely, Coleman indicated that “social capital was not limited to the powerful, but could also convey real benefits to [the] poor and marginalized” (Field, 2003, p. 20). Much of the literature in this area focuses on social capital inequities based on socioeconomic status and on returns to social capital in the form of occupational attainment (e.g., Granovetter, 1973; Lin, 1999; Lin 2000; Levesque, 2005). The emphasis here, however, is on differences in social capital in urban and rural settings and returns in the form of educational attainment.

Of relevance to this study are suggestions that youth in rural communities have stronger social networks, both within the family and within the community. Rural families have been characterized as having closer family systems, more contact with kin, and stronger community networks (Dyk & Wilson, 1999). Rural schools similarly provide an environment where students benefit from closer relationships with their teachers and peers, more involvement of their parents in the school, and more opportunities for gaining leadership experience (Looker, 2001). These social networks have the potential for enhancing education attainment. Coleman (1988), for example, showed that family relationships contribute to the success of children in school through both the physical presence of and the attention paid by

parents. This effect was independent of socioeconomic status and parental level of education. Similarly, Coleman (1988) showed that relationships with teachers and others in the community contribute to success in school and, in particular, high school completion, which is a necessary prerequisite for entrance into postsecondary programs such as pharmacy. However, there might also be a disadvantage to these social networks in rural communities, as strong bonds may prevent individuals from forming new social networks that would be beneficial (Keeley, 2007). In particular, youth in small towns may value their family and community relationships to the point that they are reluctant to leave home to obtain a university education.

The norms within rural social networks may also be disadvantageous. Hansen and McIntire (1989), for example, showed that rural parents are less likely than urban parents to expect their children to attend university, and more likely to either not care what their children do or expect them to get a full-time job or take vocational training. This may well have the effect of limiting the educational aspirations and attainments of rural youth. Also, rather than being supportive, the tightly knit small town society may be closed minded, gossipy, and rife with favoritism (von Reichert, 2006, p.345), which might have the effect of deterring those who leave to attend university from migrating back to take local jobs.

Summary

The literature confirms the existence of a pharmacist shortage in BC, at least in the sense that demand exceeds supply. This shortage is not limited to rural and remote communities, although the consequences to those communities may be more severe. The shortage is also likely to persist given that the factors limiting the supply (e.g., the spaces

available in pharmacy programs) and driving the demand for pharmacists (e.g., the increase in utilization of medications) will themselves persist.

The literature also confirms that health professionals taking jobs in rural areas likely grew up in rural areas. This does not mean, though, that everyone with a rural background will choose to work in a rural area upon completion of their education; thus, a variety of recruitment strategies may be necessary to ensure adequate health human resources in rural areas. The most successful recruitment strategies seem to be those that target individuals with rural backgrounds, who are already more inclined to take jobs in rural areas. Financial incentives are commonly used, and may have a place in addressing some of the extra financial burden of rural students, who usually have to leave home to attend university. However, changes to university admissions processes, the provision of rural educational experiences, and measures that address some of the disadvantages of rural practice, such as professional and social isolation, all have a place.

In particular, recruitment strategies that address some of the barriers to university access in a supply-constrained environment and the differences in social capital between rural and urban communities may be useful. For example, rural youth may be disadvantaged in competitive admissions processes by virtue of having fewer educational resources, less support from family members and others to pursue higher education, and fewer opportunities to gain relevant skills through work experience. At the very least, then, admissions processes should be free of bias against rural students, and affirmative action measures may be needed to help rural youth gain access to the university programs they need to become health care professionals. Rural youth may also be disadvantaged by virtue of being forced to leave their strong social networks to attend university. However, it would not be difficult for

universities to take steps to facilitate the development of new networks to help rural students integrate into their university and future professional environment. Similarly, when students have graduated and are being recruited into practice, facilitation of professional networks and attention to the needs of spouses and children might encourage graduates to take positions in rural communities and might contribute to the job and personal satisfaction that will aid retention.

CHAPTER III: RESEARCH DESIGN

Introduction

This study was conducted using survey methodology, in which a written questionnaire was administered to pharmacy students who were about to graduate. The questionnaire was validated through the use of semi-structured interviews and a pilot test of the questionnaire with members of the UBC Pharmacy graduates of the Class of 2006, and then administered to members of the Class of 2007. Prior to beginning the study, a Certificate of Approval was obtained from UBC's Behavioural Research Ethics Board.

The dependent variable for this study was the community in which each pharmacy graduate was planning to take his or her first job upon graduation. One issue that quickly arose was the need for a system to classify the rurality of a community. Several options were considered, including the use of postal codes, census designations, various rurality indices, and BC Ministry of Health designations. Census designations were selected, as they were simple and have been used in a wide variety of contexts. Accordingly, communities were classified as being of one of three types: Census Metropolitan Areas (CMAs), which are large urban centres with populations exceeding 100,000; Census Agglomerations (CAs), which are smaller urban centres with populations between 10,000 and 100,000; and Rural and Small Towns (RSTs), which are towns with populations less than 10,000.

The independent variables for this study were identified based on the literature and on assumptions about why someone would take a job in a particular place, these being home town location, family situation, practicum experiences, leisure preferences, and financial factors. These variables were used to develop the items on the questionnaire, which was administered to the Pharmacy Class of 2007. This sample was selected for reasons of

convenience, but also because the students in the class were in the process of making decisions about where they would take their first job at the time of the study, so the factors affecting that decision would be fresh in their minds. It was feasible to administer the questionnaire to the whole class, so it was not necessary to select a probability sample from this group. The class was assumed to be a typical case sample. Although they were the first class to graduate from a revised curriculum, there was no reason to think that there was anything unusual in their decision making about their first job location.

Because the class was split into two cohorts, one on campus and one off campus each term, separate arrangements were made to administer the questionnaire to the two groups. The on-campus cohort received the questionnaire during a required class that had time available, and the off-campus cohort received the questionnaire individually, through a variety of means, and had to complete it on their own time. As a consequence, the response rate was expected to be good for both cohorts, but to be higher for the on-campus cohort.

Data from the questionnaires were entered into SPSS, checked for entry errors, and analyzed for findings that were significant at the $p \leq 0.05$ level. Appropriate statistical tests were conducted to find differences between groups based on job location type (i.e., CMA, CA, or RST) and on the potentially confounding demographic variables of age, sex, marital status, and ethnicity.

Variables

As previously mentioned, the dependent variable in this study was the intended location of the first job taken after graduation from UBC's B.Sc.(Pharm.) program. The independent variables were home town, current family situation, leisure preferences,

practicum locations, financial incentives, and demographic factors, each of which is further described below.

The home town was defined as the community where participants had spent at least 6 years between the ages of 5 and 17; that is, where they had lived for at least half of their elementary and high school years. This time frame was based on the assumption that these are the years when a person forms an attachment to a place as his or her home, acquires some preferences for leisure activities, and develops attitudes to the lifestyle in that community or type of community. Students in the pharmacy program must come to Metro Vancouver to attend UBC, but have some choice regarding where they will live following graduation. Those who grew up outside Metro Vancouver may either want to go home (or to a place near to or similar to home) or may want to use their education as a means of making a life in a new community.

Family situation at the time of graduation was expected to be a mediating variable on home town. The appeal of a taking a job in the location where one grew up may be reduced by a change in the family location during the years the student is at university. A place may no longer be considered home if one's parents and/or siblings (or partner and/or children) have moved away, and there may be strong familial ties that motivate one to seek work wherever one's parents and/or siblings live. Alternatively, conflict in familial relationships and/or a simple desire for independence may be reasons to choose to live and work elsewhere. For students in romantic relationships or marriages, the acceptance of the relationship by their parents, the nature of their partner's career plans, and the future plans for their relationship, such as ongoing commitment or marriage and having children, are likely to influence where they choose to take work and may override the influence of parents

and siblings. All these factors may lead to the formation of new notions of where home is during the time students are attending university.

The nature of a pharmacist's work does not vary much with location, but the nature of the available leisure activities may be quite different. Students' preferences for leisure activities might have been influenced by the access (or lack of access) to those activities during their upbringing and their years at university. For example, those with a rural upbringing will likely have had more access than those with an urban upbringing to some outdoor activities, such as camping, fishing, and hunting, while those with an urban upbringing will have had more access to theatre, music, and a range of cultural and sports activities. Students may choose a job location to have access to the leisure activities they enjoyed while growing up, or may instead choose a job location to have access to previously unavailable activities.

Pharmacy students must complete several practicums during their studies, including a 4-week practicum in the summer following each of the second and third years of the program, and a 4-week and an 8-week practicum during the fourth year of the program. Students have some choice in their practicum locations, but of the total of 20 weeks of practicum, 4 weeks must be spent in a hospital rather than community practice setting, and 12 weeks must normally be spent outside the Lower Mainland (A. Kim-Sing, personal communication, January 15, 2008). Many of the locations outside the Lower Mainland are in urban centres but some are in rural areas. Thus, there is an opportunity for students from both rural and non-rural upbringings to be exposed to pharmacy practice in rural locations. As previously stated, the work tasks will be similar in rural and non-rural locations, but the pace of work is usually more relaxed and it is easier for pharmacists to form effective working

relationships with their clientele and fellow health care professionals in rural areas. First-hand experience of these, and perhaps other, positive attributes of rural practice may influence pharmacy graduates' choice of job location.

There may be a variety of financial reasons for choosing a rural job location. Some students have substantial debt upon graduation, so money may be a strong motivating factor for taking a particular job. Salaries tend to be higher in locations outside of Metro Vancouver, reflecting the difficulty in enticing employees to these areas. Signing bonuses, moving allowances, and other monetary benefits are also offered by some employers, again more commonly outside of Metro Vancouver. Also, some corporations have implemented scholarship programs whereby pharmacy students receive funding to support their education in exchange for a commitment upon graduation to work for a period of time in an underserved area. Thus, some students take positions in rural areas to fulfill their scholarship commitments when they would normally not choose such a job location. The terms of these scholarships typically also include repayment of the scholarship in full for refusal to accept the assigned position.

The demographic factors of age, sex, marital status, and ethnicity were not expected to have a direct influence on job location on graduation, except perhaps by virtue of their possible moderation of other independent variables such as family situation and leisure preferences. For example, a female student may have different leisure preferences than a male student; an older student is more likely to be in a committed romantic relationship where the partner's location and career plans have an influence on the student's location preference; and a student from an ethnic group that has primarily settled in urban areas will be unlikely to have grown up in a rural location.

Research Hypotheses and Model

Given findings from the literature and common assumptions about the factors that might influence job location, home town location, family location and dynamics at the time of graduation, leisure activity preferences, and financial factors were selected as independent variables worthy of study and the following hypotheses were proposed:

1. Home town location will have a moderate positive influence on job location on graduation.
2. Location in the home town of significant others with whom there are good relationships will moderately increase the influence of home town on job location.
3. Location outside the home town of significant others with whom there are good relationships will moderately decrease the influence of home town on job location.
4. Leisure activity preferences will be weakly positively associated with type of home town location.
5. Leisure activity preferences will have a weak positive influence on job location.
6. Exposure to rural practice during undergraduate practicums will have a weak positive influence on rural job selection.
7. Financial factors will have a weak positive influence on job location.
8. The demographic variables of age, sex, marital status, and ethnicity will have no direct influence on job location; rather, these variables will be moderately positively associated with any or all of home town location, family situation, leisure preferences, exposure to rural practice, and financial factors.

These hypotheses are illustrated in the research model shown in Figure 1.

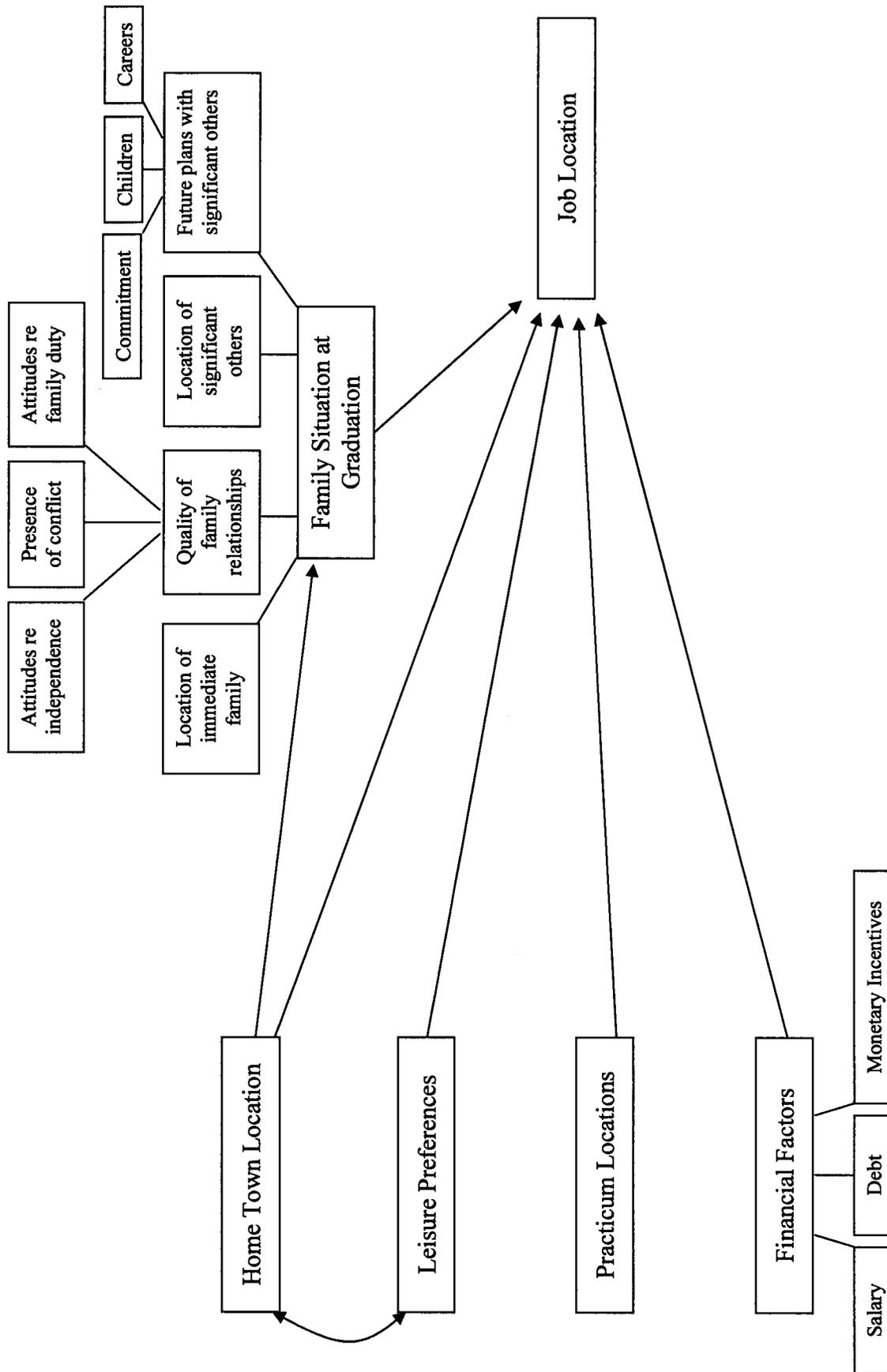


Figure 1. Research model of characteristics associated with rural job selection

Population and Sample

The inferential population for this study is, at the very least, pharmacy students across Canada, given the similarities in pharmacy programs (e.g., with similar curricula to meet the requirements of the Canadian Council for Accreditation of Pharmacy Programs and with one pharmacy school per province in most cases) and in provincial population distribution (e.g., with the majority living in a few urban centres and the remainder scattered throughout the province). The inferential population may extend further geographically and professionally, given that literature from other countries and other health professions seemed relevant and was used in support of this study. The inferential population would also extend temporally, with results from current students being extrapolated to future students.

The target population for this study was fourth year pharmacy students attending the University of British Columbia, who were about to graduate and take their first professional jobs, over the period of 2002 to 2007. Serious concerns about the shortage of pharmacists in rural areas of BC have existed for at least this long (and are likely to persist), and the admission process and the size and makeup of the student population have been fairly consistent during this period. Given existing records, this population could be characterized for some simple demographic variables, such as sex and place of residence at the time of admission.

The survey frame for this study was the UBC pharmacy Class of 2007. Because it was possible to survey this entire group, the sample consisted of all students in the survey frame. This sample was chosen because 2007 was the first feasible opportunity to undertake the study and there was no reason to think this sample deviated from the target population in any significant way. As such, it was considered a typical case sample.

Definition of Rurality

Appropriate criteria for classifying a community as rural or urban were difficult to determine. Some publications (Easterbrook et al., 1999; Woloschuk & Tarrant, 2002) defined communities as rural when they had a population of less than 10,000. However, this definition is not consistently applied. For example, one study used postal codes to distinguish between rural and urban communities (Kwong et al., 2005), another defined communities as rural when they had a population of less than 7,500 (Kegel-Flom, 1977), while another defined communities as “nonmetropolitan” when they had a population of less than 50,000 (Willoughby, Arnold, & Calkins, 1981), and yet another defined communities as rural when they had a population of less than 20,000 and were at least 60 miles from a metropolitan area with a population of greater than 100,000 (Tavernier et al., 2003).

Given this inconsistency, several options were considered. The first was the use of postal codes. All postal codes in Canada are of the form ANA NAN (where A = alpha character and N = numeric character), the first three characters of which identify the “forward sortation area.” A zero as the numeral in this sequence means the community has been designated to receive rural mail (Statistics Canada, 2002a). A typical forward sortation area serves 7,000 households; however, the range is from 0 to 50,000 (Statistics Canada, 2002a), and no information was located on the criteria Canada Post uses to designate an area as rural.

The second option was to use Canada Census categories for communities. In this case, the categories for urban communities were the clearest, these being Census Metropolitan Areas (CMAs) with urban cores containing a population of at least 100,000 and Census Agglomerations (CAs) with urban cores containing a population of at least 10,000

(Statistics Canada, 2002b). The communities in BC designated as CMAs and CAs are shown in Table 2.

Table 2. Canada Census designations for British Columbian communities

Census Metropolitan Area (Urban core $\geq 100,000$)	Census Agglomeration (Urban core $\geq 10,000$)
Abbotsford	Campbell River
Kelowna	Chilliwack
Vancouver (i.e., Metro Vancouver)	Courtenay
Victoria (i.e., Capital Regional District)	Cranbrook
	Dawson Creek
	Duncan
	Fort St. John
	Kamloops
	Kitimat
	Nanaimo
	Parksville
	Penticton
	Port Alberni
	Powell River
	Prince George
	Prince Rupert
	Quesnel
	Salmon Arm
	Squamish
	Terrace
	Vernon
	Williams Lake

Note: Adapted from “Census Metropolitan Areas and Census Agglomerations, 2006,” from Statistics Canada, 2007.

With regard to rural communities, the formal Canada Census definition of a rural area is one with a population of less than 1,000 (du Plessis, Beshiri, & Bollman, 2001), leaving it unclear how to designate communities with core populations between 1,000 and 10,000. However, Statistics Canada in fact recognizes six separate definitions of “rural” and applies these as appropriate to different types of policy analysis. These definitions emphasize different aspects of rurality, such as population size, population density, proximity to larger communities, and/or access to services. In a labour market context, as seems relevant to this study, Statistics Canada applies a “rural and small town” (RST) designation to those communities that are not defined as CMAs or CAs (du Plessis et al., 2001), that is, to communities with populations under 10,000.

The third option was to use a rurality index to determine the degree of rurality or remoteness of the communities of interest. Several such indices were located, including the Griffith Service Access Frame developed in Australia in the context of rural education (Griffith, 1994), the General Practice Rurality Index proposed for the study of rural physicians in Canada (Leduc, 1997), and the multistakeholder framework/index of rurality developed by a joint committee of the Canadian Medical Association, the Canadian Nurses Association, the Society of Rural Physicians of Canada, and the Canadian Pharmacists Association (Adams et al., 2003). The Griffith Service Access Frame uses three factors (population; distance, time, and cost of travel to reach education and health services; and economic capacity to pay travel costs) to calculate a community’s rurality score (Griffith, 1994), and has been applied in BC in a study of rural teachers, nurses, social workers, and police officers (Montgomery, 2003). The General Practice Rurality Index suggests six factors be used to determine the rurality of a community, including remoteness from an advanced

referral centre, remoteness from a basic referral centre, population, number of general practitioners, number of specialists, and presence of an acute care hospital (Leduc, 1997). The multistakeholder framework/index of rurality is similar, suggesting a formula for calculating a rurality score based on 10 factors related to access to health care services, including distance to secondary and tertiary referral centres, number of health care providers available per 1000 population, ability to provide services such as obstetrics, surgery, and radiology, and difficulty obtaining locums (Adams et al., 2003).

A final option considered was to use a BC Ministry of Health definition of rurality. The Ministry has several programs designed to improve access to health care services in northern, rural, and remote communities, all under the aegis of the Rural & Remote Health Initiative (BC Ministry of Health, 2007). These programs include, but are not limited to, Health Connections, a travel assistance program for BC residents in rural areas who must travel to obtain non-emergency medical services; the Interprofessional Rural Program of BC, which places interdisciplinary teams of students from a variety of health professions in rural locations for their practicums; Health Match BC, a provincial agency established to recruit health care professionals to rural areas; the BC Loan Forgiveness Program, available through the Ministry of Advanced Education, where BC student loans are reduced by 1/3 for each year of work in an underserved community; and the 2001 Subsidiary Agreement for Physicians in Rural Practice, which provides a number of recruitment and retention incentives for physicians in rural and remote areas of BC (BC Ministry of Health, 2007).

However, no consistent definition of “rural” or “remote” or “underserved” for these programs was located. For example, the Health Connections program is available to residents of some communities in the Interior Health, Northern Health, and Vancouver Island Health

Authorities, but the programs vary between Health Authorities. The Interior Health Authority simply provides patients with information on transit and not-for-profit community transportation options available for residents of the Okanagan, Kootenay Boundary, East Kootenay, and Thompson Cariboo Shuswap Health Service Areas (Interior Health, 2007); the Northern Health Authority provides low fare bus transportation on a variety of routes to Terrace, Smithers, Prince George, Grande Prairie, Kamloops, and Vancouver for patients who have received physician referral for a medical service not available in their home community (Northern Health, 2007); and the Vancouver Island Health Authority refers patients to the “Wheels for Wellness Society,” a non-profit organization with volunteer drivers who will transport patients to appointments that are at least 75 km away (Wheels for Wellness Society, 2005). The Interprofessional Rural Program of BC is currently only functioning in eight communities of varying size and remoteness, namely Bella Coola, Enderby, Fort St. John, Hazelton, Hope, Port McNeill, Powell River, and Trail (BC Academic Health Council, 2007). The mandate of Health Match BC is, in fact, no longer limited to rural areas and now extends to the recruitment of health professionals to communities throughout the province (BC Ministry of Health, 2007). The BC Loan Forgiveness Program provides no details on the communities that are considered “underserved” and therefore eligible for the program, but does provide a list of communities that are ineligible, many of which are in the Metro Vancouver, Fraser Valley, and southern Vancouver Island regions (BC Ministry of Advanced Education, 2008). Finally, the Subsidiary Agreement for Physicians in Rural Practice indicates that the agreement does not apply to physicians practicing in Metro Vancouver, Greater Victoria, Nanaimo, Kelowna, Kamloops, Vernon, Penticton, and the Fraser Valley west of Aggasiz/Harrison Lake. Further,

it provides a long list of eligible communities, but these communities are subject to removal from the list based on a point system of medical isolation and living factors (Government of BC, 2001). Thus, it was not clear how the Ministry of Health defined rurality and so not possible to apply Ministry criteria to locations in this study.

The use of postal codes to categorize communities as being rural or urban was attractive because of its simplicity; however, this option was rejected given the lack of information on how Canada Post actually determines which communities will receive a rural forward sortation area designation and the large range for number of households that might be in a single forward sortation area. Similarly, the idea of being able to classify the degree of rurality of communities was attractive as it would take into account a variety of factors potentially relevant to the provision of pharmacy services and the scores obtained could be used to create a series of categories for communities rather than limiting the choices to a rural-urban dichotomy as in the case of postal codes. However, the indices located seemed to be intended for very small communities, which might in fact not have either a community or hospital pharmacy so would not be relevant to this study, and required complicated calculations and access to data that would be challenging to obtain.

Thus, the Canada Census categories were used to classify communities in this study. Communities designated as CMAs and CAs were determined from information available from Statistics Canada (Statistics Canada, 2006) and all other communities were deemed to be RSTs. Reasons for this choice include the simple criteria for the designations used and the ability to make a distinction not only between urban and rural communities, but also between larger urban communities, such as Vancouver and Victoria, and smaller urban communities, such as Penticton and Prince George, where many pharmacy jobs are located. Further, this

system was applicable in other provinces and, because it is based on population, was easy to apply to communities outside of Canada where some participants had lived and had taken jobs.

In addition to having the Canada Census guidelines to classify communities by size, referred to throughout as “location type,” it was useful to have a system for classifying communities by geographical area within the province. For this purpose, the College of Pharmacists of BC’s electoral districts for community pharmacy representatives on the College Council were used, whereby the province is divided into five districts, as follows:

District 1, which includes Electoral Areas A (University Endowment Lands) and C (Bowen Island); the Cities of Vancouver, Burnaby, Richmond, New Westminster and North Vancouver, the Districts of North Vancouver and West Vancouver, the Village of Lions Bay, and the Regional District of Squamish-Lillooet (except the District of Lillooet);

District 2, which includes Electoral Area B (Ioco-Buntzen); the Regional Districts of Dewdney-Alouette, Central Fraser Valley and Fraser Cheam; the Cities of Coquitlam, Port Coquitlam, Port Moody, Surrey and White Rock; and the District of Delta;

District 3, which includes the Capital Regional District; the Regional Districts of Alberni-Clayoquot, Central Coast (Ocean Falls), Comox-Strathcona, Cowichan Valley, Mount Waddington, Nanaimo, and Sunshine Coast;

District 4, which includes the Regional Districts of Central Kootenay, Central Okanagan, Columbia-Shuswap, East Kootenay, Kootenay Boundary, North Okanagan, Okanagan-Similkameen, and Thompson-Nicola; the District of 100 Mile House (from within the Regional District of Cariboo), and the District of Lillooet (from within the Regional District of Squamish-Lillooet); and

District 5, which includes the Regional Districts of Bulkley-Nechako, Cariboo (except the District of 100 Mile House), Fraser-Fort George, Kitimat-Stikine, Peace River-Liard, Skeena-Queen Charlotte, and Stikine (College of Pharmacists of British Columbia, 2006c).

These districts are sometimes descriptively referred to as “Vancouver,” “Fraser Valley,” “Vancouver Island,” “Kootenay/Okanagan,” and “Northern BC,” so these terms are occasionally used here. However, these descriptors can be somewhat misleading. For example, many of the communities within Metro Vancouver lie outside District 1 (e.g., the City of Surrey, in District 2) and some more remote communities lie inside District 1 (e.g., Whistler), and District 3 extends beyond Vancouver Island to include communities on the Sunshine Coast. Thus, a list showing both location type and College district for all the communities mentioned by participants is provided in Appendix I. Also, to avoid confusion between the College of Pharmacists’ electoral districts, provincial electoral districts as used by Elections BC, and provincial college regions as they apply to public and university colleges in BC, the term “pharmacy districts” will be used henceforth.

Questionnaire Design and Validation

The survey was conducted using a written questionnaire rather than a web-based instrument. It was felt that this would result in a higher response rate, given the length of the questionnaire and the fatigue of pharmacy students with their large burden of web-based course and teaching evaluations. A conscious effort was made to ensure that the questionnaire was attractive and that the instructions and items were clear. The items were based on literature that was often not directly relevant to the pharmacy workforce in British Columbia and on speculation about the factors that might affect job location decisions. Thus, it was important to include a validation phase in the study. This involved interviewing some

recent graduates to determine why they had taken jobs in the particular communities where they were working to confirm the content of the questionnaire, and pilot testing a draft version of the questionnaire, the findings of which were compared to the interview findings.

Participants for the interviews were recruited from the UBC Pharmacy Class of 2006 using an invitation (see Letter of Initial Contact in Appendix II) distributed by e-mail on October 25, 2006 to the PHAR 480 class list from the 2005 Winter Session. Four people who were registered in the course but did not graduate in May 2006 were omitted from the e-mail distribution list. The original intention was to include four types of participants in the sample: those with a rural upbringing and rural job, those with a rural upbringing and an urban job, those with an urban upbringing and an urban job, and those with an urban upbringing and a rural job. However, only 14 people responded to the invitation to be interviewed, 12 of whom were eligible so were accepted. The two excluded were a hospital resident and a self-employed pharmacist doing locums in communities throughout the province, the resident because residency locations are assigned to rather than chosen by the resident, and the self-employed pharmacist because she was working in many different locations.

The interviews took place between November 28 and December 30, 2006. Each interview was conducted in person, at a time and place of the participant's choosing. Consent was obtained (see sample Consent Form, Appendix II) prior to starting the interview, a copy of the consent form was provided to the participant, and the interview was tape-recorded and later transcribed. Topics covered during the interview included the participant's current job situation, home town location, location of and relationship with family members and romantic partners, practicum experiences, leisure activities, and financial situation, and the influence of each of these or any other factors on the participant's current job location (see

Interview Outline, Appendix II). Demographic information on age, sex, marital status, and ethnic background was also requested.

At the end of each interview, the participant was given a copy of the draft questionnaire, with instructions to complete it, to note the time it took to complete, and to provide feedback on the questions. A stamped self-addressed envelope was provided and follow up requests were made to those who did not return the questionnaire by February 20, 2007. A \$25 honorarium was offered to each participant for the time involved in the interview and completion of the questionnaire. Three participants requested that their honorarium be donated to a worthy cause, so a \$75 anonymous donation was made to the Dean of Pharmaceutical Sciences Scholarship.

Questionnaire Administration

The draft questionnaire was modified to take into account some of the interview findings and to correct for minor errors and omissions identified during pilot testing. For example, options were added to a question on type of practice to include working at multiple sites (i.e., floating between two locations and between community and hospital practice), boy/girlfriend was added to the options for questions relating to significant others, and several modifications were made to the questions related to financial matters, such as revision upwards of the amounts for salary and debt and the addition of a question on financial benefits, such as signing bonuses and moving allowances.

The questionnaire was then administered to the UBC Pharmacy Class of 2007. This class consisted of 127 students, split into two cohorts. The “Term 1” cohort consisted of 67 students, who were scheduled to be on campus from September to December and off campus from January to April completing their practicums. The “Term 2” cohort consisted of 60

students, who were scheduled to be off campus from September to December completing their practicums and on campus from January to April. In each cohort, there was one student not eligible to graduate, leaving 66 in the Term 1 cohort and 59 in the Term 2 cohort for a total of 125 students eligible to participate in the study.

Brief presentations about the study were made to both cohorts during a PHAR 499 class, on October 25, 2006 to the Term 1 cohort and on January 10, 2007 to the Term 2 cohort, and students were informed that a \$500 honorarium would be given to their Grad Committee for the participation of the class in the survey. The questionnaire was administered to the Term 2 cohort on March 15, 2007 during a PHAR 499 tutorial that had sufficient time available. The Term 1 cohort was contacted by e-mail on March 15, 2007 and informed that they could have the questionnaire sent by mail or could pick it up in person if they were coming to campus to deliver their practicum portfolios, due either March 30 or April 27, 2007, depending on their particular schedule. Additional arrangements were made to deliver questionnaires to some of the students who were expected on campus on April 30 or May 1, 2007 for a mock exam in preparation for their licensing exams. Stamped self-addressed envelopes were provided on request.

Through these means, the questionnaires were distributed to 59/66 (89%) of the Term 1 cohort and 59/59 (100%) of the Term 2 cohort, for a total of 118/125 (94%). This total excludes one questionnaire that was provided in error to the ineligible student in the Term 2 cohort who was present in the PHAR 499 tutorial when the questionnaires were distributed. One questionnaire from this group was returned incomplete, presumably from this student, and not included in the analysis. Completed questionnaires were returned by 44/59 (74.6%) of the Term 1 cohort and by 59/59 (100%) of the Term 2 cohort, for an overall response rate

within the class of 103/125 (82.4%) and an adjusted response rate for those receiving the questionnaire of 103/118 (87.3%). Given the high percentage of the class who received and returned the questionnaire, and a reluctance to interfere with the students' preparation for their upcoming licensing exams, no follow up measures were taken.

Analysis of Data

Responses on the completed questionnaires were coded by hand, then entered into an SPSS data file. All entries were double checked before any analysis was performed. For questions using rating scales, responses were quantified as appropriate for the scale to facilitate the analysis. For example, a number of questions asked participants to rate the degree of influence of various factors on their job location on a 4-point rating scale from "No Influence" to "Strong Influence." Values from 0 to 3 were assigned to these descriptors so that mean degree of influence could be calculated. A few questions asked participants to use a 5-point rating scale where the labels on the scale ranged from strongly negative (e.g., "Very Unhappy" or "Strong Negative Influence") to strongly positive (e.g., "Very Happy" or "Strong Positive Influence") with the middle point being a neutral rating. In these cases, values from -2 to +2 were assigned, again so that mean ratings could be calculated. Participants who gave no response or a response of "Not applicable" were excluded from the calculation of the mean and from any further analysis of the particular variable.

In all cases where rating scales were quantified, mean scores were compared to determine whether there were statistically significant differences associated with job location type (i.e., CMA, CA, or RST) or with the demographic variables of age, sex, marital status, and ethnicity. Where the means for two groups were being compared (e.g., males and females), the parametric and nonparametric options were the independent-samples t-test and

the Mann-Whitney U test. Where the means of three or more groups were being compared (e.g., those located in CMAs, CAs, and RSTs), the options were the one-way between-groups analysis of variance (ANOVA) and the Kruskal-Wallis test. To determine whether the parametric or nonparametric test would be appropriate, normality was assessed using skewness and kurtosis ratios and Kolmogorov-Smirnov tests. If all of the skewness and kurtosis ratios were less than ± 1.96 and the Kolmogorov-Smirnov statistics were non-significant ($p > 0.05$), the normality condition was deemed to have been met and the parametric test was used. Where three or more groups were being compared and the omnibus test was statistically significant ($p \leq 0.05$), appropriate post hoc analyses were conducted, specifically, Tukey's Honestly Significant Difference (HSD) test in the case of the one-way ANOVA and Mann-Whitney U tests with Bonferroni adjustment applied to the significance level for each possible pair in the case of the Kruskal-Wallis test. Effect sizes were also determined by calculation of η^2 values using the following formulae:

$$\text{for 2 groups:} \quad \eta^2 = \frac{t^2}{t^2 + df}$$

$$\text{for } \geq 3 \text{ groups:} \quad \eta^2 = \frac{\text{Sum of Squares (between groups)}}{\text{Sum of Squares (total)}}$$

Values for η^2 of 0.01 were considered small, 0.06 were considered medium, and 0.14 were considered large, as per Huck (2008, p. 246).

Other types of analyses were used as appropriate. For example, where data were in the form of frequencies rather than rating scores (i.e., participation in various leisure activities and provision of financial incentives by employers), Chi-Square Goodness of Fit tests were used to assess for statistically significant differences associated with job location

type (i.e., CMA, CA, or RST) or with the demographic variables of age, sex, marital status, and ethnicity. Two-dimensional correspondence analysis was used to discern patterns in the types of sports-related and entertainment-related leisure activities enjoyed by the participants and the association of these with job location type. Because these leisure activities were reported in the form of multiple response variables, it was not possible to obtain inertia values using SPSS; thus, a trial copy of XLSTAT® was downloaded and used for this purpose. Finally, logistic regression was used to determine the combination of factors that might best predict job location type. This analysis required that the dependent variable be reduced to a dichotomous variable, so job location type was recoded as CMA or non-CMA (consisting of CA & RST combined); similarly, categorical independent variables were recoded as dichotomous variables, as required by SPSS (Pallant, 2005, p. 160). Independent variables were considered for inclusion in this analysis if they had a statistically significant relationship with job location type, had a large effect size for this relationship, or were representative of the study hypotheses. Multicollinearity was assessed through multiple regression analysis to ensure that the independent variables were not highly correlated with each other. A reasonable set of independent variables was thus identified, and both forward and backward regressions were performed to determine the combination of independent variables that would best predict the outcome for the dependent variable.

Summary

This study was conducted using survey methodology, with a validation phase followed by the administration of a written questionnaire. For the validation phase of the study, volunteers were recruited from the UBC Pharmacy Class of 2006. Fewer volunteers came forward than expected, but those who did were a representative cross-section of their

class in terms of sex, ethnicity, and type of pharmacy practice. Further, they were from a reasonable variety of home towns and had taken jobs in a reasonable variety of locations around the province, so were an acceptable sample for this portion of the study. Face-to-face interviews were conducted in late 2006. The interviewees also pilot tested a draft version of the questionnaire, and findings from the questionnaires were compared to those from the interviews to determine whether they were in reasonable agreement.

The questionnaire was revised using the findings of the validation phase of the study, and was administered to the Class of 2007. This was done close to the end of the academic year, when it was assumed that most of the class would have made job commitments. Nevertheless, the questionnaire was designed so that it could be completed even if a job commitment had not yet been made. There were challenges in distributing the questionnaire to the portion of the class off campus completing their practicums at the time of the survey, but most of the eligible participants did ultimately receive the questionnaire. Overall, the response rate was good, making it possible to analyze the data for statistically significant findings.

CHAPTER IV: FINDINGS

Introduction

The findings of this study are reported in two sections. The first section describes the results from the validation phase of the study, including interviews and a pilot test of the written questionnaire. The second section describes results from the questionnaire. In each case, the demographic characteristics of the participants are outlined, followed by the findings related to the factors influencing the participants' job location decisions. These factors are organized into four major categories, namely home town location, family situation, leisure preferences, and financial incentives.

A large number of statistical tests were performed to identify differences in the extent to which each factor affecting the job location was associated with the participants' job location type (i.e., Census Metropolitan Area (CMA), Census Agglomeration (CA), or Rural or Small Town (RST)), age, sex, marital status, and ethnicity. Many of these tests gave results that were not statistically significant. Summaries of the results are provided here, with an emphasis on statistically significant findings. A full report of all statistical tests, including the type of test used, statistic value, *p*-value, and effect size, is provided in Appendix III.

Interviews and Pilot Test

Face-to-face interviews were conducted with 12 members of the Class of 2006 who were selected from the 14 who volunteered to participate. The interviews were recorded and verbatim transcripts were prepared, from which the results that follow were prepared.

Participant Characteristics

The interview participants ranged in age from 23 to 29 years old, with a mean of 24.3 years. One (8.3%) was married, one (8.3%) was engaged, six (50%) had a boyfriend or

girlfriend, in every case living in another community, and four (33.3%) were not in a romantic relationship. Eight (66.7%) were living with their parents. None had children. As shown in Table 3, the participants were typical of UBC Pharmacy graduates for sex ratio, with seven females (58.3%) and five males (41.7%), and type of practice chosen, with 10 (83.3%) in community practice and 2 (16.7%) in hospital practice. They were well distributed geographically among the five pharmacy districts, with two (16.7%) in District 1 (Vancouver), one (8.3%) in District 2 (Fraser Valley), three (25%) in District 3 (Vancouver Island), three (25%) in District 4 (Kootenay/Okanagan), and three (25%) in District 5 (Northern BC). Further, there was a good distribution of location type, with four (33.3%) in Census Metropolitan Areas, four (33.3%) in Census Agglomerations, and four (33.3%) in RSTs.

Table 3. Sex, practice type, and location of interviewees

Participant	Sex	Practice Type	Location	Pharmacy District	Location Type
#1	F	Community	Smithers	Northern BC	RST
#2	F	Community	Prince George	Northern BC	CA
#3	M	Hospital	Richmond	Vancouver	CMA
#4	M	Community	Victoria	Vancouver Island	CMA
#5	F	Community	Port Alberni	Vancouver Island	RST
#6	M	Community	Nanaimo	Vancouver Island	CA
#7	F	Community	Surrey	Fraser Valley	CMA
#8	F	Community	Whistler	Vancouver	RST
#9	F	Community	Williams Lake	Kootenay/Okanagan	CA
#10	M	Community	Revelstoke	Kootenay/Okanagan	RST
#11	F	Hospital	Kelowna	Kootenay/Okanagan	CMA
#12	M	Community	Prince George	Northern BC	CA

Influence of Home Town Location

Of the 12 participants, 7 (58.3%) had taken jobs in the communities where they grew up. However, when asked why they had chosen the location, only two mentioned the fact that it was home. Even then, it was just one of several factors. For example, when asked about having to choose between several job offers, one participant indicated that “the big determining factor for me...was the ability to practice the way I wanted to practice” but when asked specifically about where he grew up indicated that he was “from [the community] originally...and that was one of the factors why I wanted to move back.” Two others indicated that they had been quite prepared to take jobs elsewhere. For example, one said, “I was a hair away from coming back to Vancouver, but I had a last minute change of plans.” And for two other participants, the move home was possibly temporary. One was contemplating a return to Vancouver to complete a hospital residency, and one was using a floating relief job as an opportunity to explore other communities, saying “I’ll do this for a while, and maybe I’ll find somewhere else that I’d like to live.”

Of the remaining five participants, four took jobs in communities in the same area of the province where they grew up. For example, one participant from Prince George was in Smithers, one from Port Alberni was in Victoria, one from Ucluelet was in Port Alberni, and one from West Vancouver was in Whistler. In two of these cases, the family had moved (from Port Alberni to Victoria and from Ucluelet to Port Alberni) while the participant was attending UBC. Only one participant had moved to another area of the province to take a job, namely from Surrey to Prince George.

The movement of participants between different location types from their home town to the location of their first job on graduation is illustrated in Figure 2.

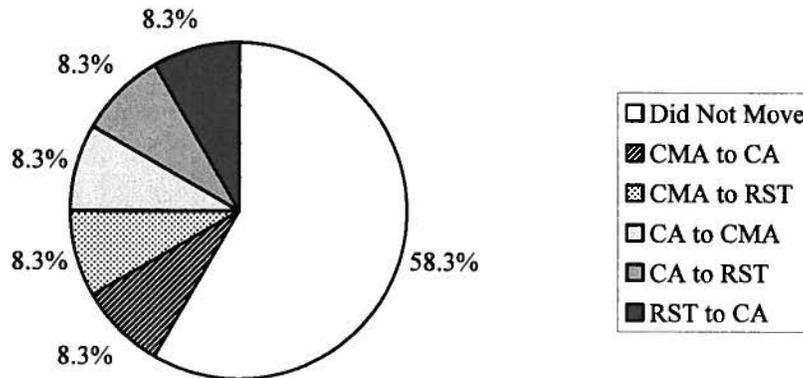


Figure 2. Movement between location types from home town to job

Influence of Family Situation

Proximity to family was the most frequently mentioned factor influencing location, cited by nine (75%) of the participants, “family” primarily meaning parents and siblings. All reported good relationships with their families. Those who had moved back into the family home after being away to attend university indicated that their parents were very pleased to have them there and that they were enjoying new or renewed relationships with their family members. Three participants made the following comments about family:

I live at home now and it’s going really well. They like having me home and I like being home.

My mom really, really, really wanted me to come home. She was so happy that it’s hard to convey. My little brother [is] pretty pleased. We’ve gotten a lot closer since I’ve been home for a period of time now. And my little sister, now she tells me she misses me when I go somewhere.

My two younger sisters were the main reasons [for taking a job where my family now lives]. One’s in Grade 12 and needed some direction on what to do with her life. So I’ve got her volunteering in a pharmacy. And my younger sister I encourage to do creative writing and all this other stuff.

Extended family members, such as aunts, uncles, and grandparents, were not mentioned as being important in the location decision, except in the case of the participant

who moved from Surrey to Prince George. Here, the presence of a brother-in-law's aunt and uncle was a factor in choosing the community, as the participant had no other personal contacts there. Two participants (16.6%), both female, mentioned proximity to a boyfriend as an influence on their location, and the availability of spousal job opportunities in the community was an important factor for the one married participant.

Influence of Leisure Preferences

Access to desired leisure activities was mentioned as an influence on the location of three participants (25%). These included the participant in Nanaimo, who enjoyed golf, curling, and playing volleyball in a local league, and the participant who had moved from West Vancouver to Whistler in part for access to skiing and outdoors activities. The ability to continue participating in several volunteer organizations was the primary influence on the location of the participant living in the Metro Vancouver area. This participant was a member of the Canadian Forces Reserves and was involved in leadership activities in two large local community service organizations. These commitments made it difficult to leave the area, and this participant had, in fact, turned down a hospital residency position in another part of the province as a consequence.

The remaining nine participants enjoyed a wide variety of leisure activities; however, the activities were such that they would be available in most communities so were not factors in selecting the location. Examples include reading, sewing, watching television, and working out.

Influence of Financial Factors

Salaries amongst the interviewees ranged from around \$65,000 to \$95,000 per year, with the highest salaries being obtained outside the Metro Vancouver area and in community

rather than hospital practice. Additional financial incentives, such as signing bonuses and reimbursement of licensing exam and license fees, were also much more commonly offered outside Metro Vancouver and in the community practice setting. Other financial incentives mentioned by the interviewees included reimbursement of moving expenses, BCPhA membership fees, and Emergency Contraception Provider course costs. Half of the interviewees reported having no debt when they graduated. Debt amongst the remaining participants ranged from around \$5,500 to \$70,000.

When asked whether financial factors had influenced their job location, most agreed that they had had a modest effect. Typical responses to this question included: “Yes, I would say a little bit” and “It helped, but it wasn’t a big factor.” However, the four participants with large debt loads (i.e., \$20,000 or more) indicated that financial factors had been a large factor in their job location choice. These four had all taken jobs outside the Metro Vancouver, and all commented on the higher salaries they could earn. The person with the highest debt said,

I needed a good salary. I couldn’t work in Vancouver. I’m hearing [salaries there are] about \$30 to \$35 per hour. That’s not a huge salary and I needed some place that was going to pay me well.

Questionnaire Pilot Test

All 12 interviewees returned the draft questionnaire. The time reported to complete the questionnaire ranged from 10 to 35 minutes, with a mean of 21.2 minutes. Very few comments were provided, but three participants noted a discrepancy in the numbering of the questions and one queried the absence of “Chinese” from the checklist of options for a question on ethnic background.

Interview and questionnaire responses were compared for agreement between the two on the main factors influencing job location for each participant. In general, the

questionnaires confirmed the interview results; however, they tended to indicate more items strongly influencing the location choice than the interviews. For example, one participant stated during the interview that the practicum courses had not been a strong influence in choosing a job location; yet on the questionnaire, one of practicum courses was singled out as a strong influence. Another participant did not mention salary as an important factor in choosing a job location during the interview, but rated this item as a strong influence on the questionnaire. A table comparing the interview and questionnaire results for the 12 participants is provided in Appendix IV, and shows a number of similar instances where the questionnaire provided a more comprehensive list of factors strongly influencing the job location decision. This is not surprising given the difference in format, with each factor listed separately on the questionnaire (e.g., importance of proximity to mother, to father, and to siblings) but grouped into themes in the interview (e.g., importance of proximity to family).

Questionnaires

Written questionnaires were distributed to 118 of the 125 eligible participants. Of these, 44/59 (74.6%) were returned by the Term 1 cohort and 59/59 (100%) were returned by the Term 2 cohort, for an overall response rate of 103/125 (82.4%) and an adjusted response rate of 103/118 (87.3%). Data from the questionnaires were entered into SPSS. Various analytical techniques were applied to the data, the results of which follow.

Participant Characteristics

One respondent chose not to provide any demographic information. Of the remaining 102 participants, 32 (31.4%) were male and 70 (68.6%) were female. This sex distribution is similar to that of the whole class, which was 35.5% male and 64.5% female (M. Nicholson, personal communication, February 26, 2008.). They were also fairly comparable to the whole

class for their geographic location on admission to the Faculty, as shown in Table 4. There are some discrepancies here, but there is a possibility that the locations on admission for the whole class are not very accurate, as they are based on postal addresses at the time of application to the program and might in fact be the location of the parents rather than the students (M. Nicholson, personal communication, February 26, 2008). For example, it is not possible that more participants (63) than members of the whole class (54) were living in District 1 at the time of admission. These numbers may reflect the fact that students from elsewhere in the province were receiving mail at their parents' homes but were living in Metro Vancouver while attending university to complete their pre-pharmacy requirements, and reported this location on the questionnaire some four years later. To confirm this idea, the geographic distribution of the participants at age 17, when they would very likely have been living at home completing high school, was compared to that of the whole class on admission, and there was a much better match for all pharmacy districts.

Table 4. Geographic distribution of the Class of 2007 vs. study participants

Pharmacy District	Participants on Admission		Participants at Age 17		Class of '07 on Admission	
	n	%	n	%	n	%
District 1	63	61.2	36	35.6	54	43.6
District 2	9	8.7	16	15.9	21	16.9
District 3	11	10.7	15	14.9	18	14.5
District 4	10	9.7	17	16.8	17	13.7
District 5	6	5.8	8	7.9	11	8.9
Out of Province	4	3.9	9	8.9	3	2.4
Total	103	100	101	100	124	100

Participants ranged in age from 23 to 40 years old, with a mean of 25.4 years. To facilitate subsequent analysis, participants were divided into three age categories, these being 23 to 25 year olds (n=68), 26 to 29 year olds (n=17) and over 30 years old (n=11). Most participants (73.5%) were single, although of these over a third (40.0%) were in relationships, and the rest were in various types of committed relationships, as shown in Figure 3. Again, to facilitate subsequent analysis, participants were divided into three relationship categories, namely uninvolved singles (n=45), involved singles (n=30), and those in committed relationships (n=27). Seven participants (6.8%) indicated they had children.

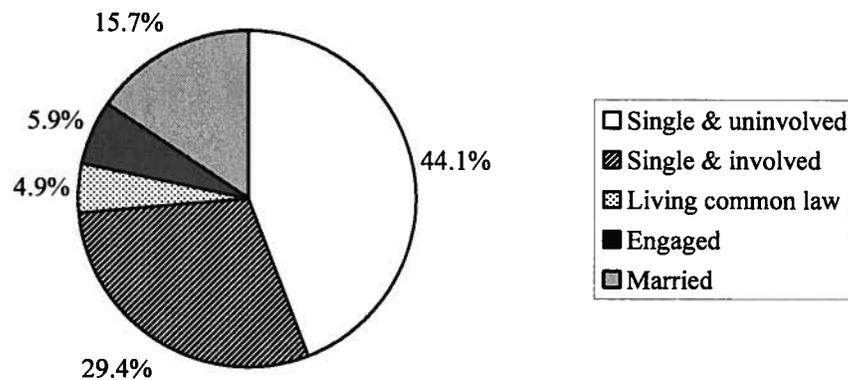


Figure 3. Relationship status of survey participants

The group was ethnically diverse, although the majority (59.8%) described themselves as Canadian or a combination of Canadian and another ethnic group. To determine ethnicity, participants were given a checklist of ethnic categories and invited to select any they would normally use to describe their ethnic background. The checklist was based on the ethnic categories provided as examples for the write-in question on the Canada Census form regarding ethnic ancestry (Statistics Canada, 2004), with very minor modifications to reflect the population in BC, namely removal of “Micmac” and “Inuit

(Eskimo)” and addition of “First Nations” and “Persian.” An “Other” category was also provided with a request to write in the appropriate ethnic background. The responses for this item on the questionnaire are shown in Table 5.

Table 5. Ethnic background of participants

Ethnic Background	n	%	Ethnic Background	n	%
Canadian	25	24.5	Other: Korean	1	1
Chinese	22	21.5	Other: Swedish	1	1
Cree	0	0	Other: Taiwanese	1	1
Dutch	0	0	Canadian + Chinese	13	12.8
East Indian	8	7.8	Canadian + Dutch	2	2
English	1	1	Canadian + East Indian	4	3.9
Filipino	1	1	Canadian + English	1	1
First Nations	0	0	Canadian + French	1	1
French	0	0	Canadian + German	1	1
German	0	0	Canadian + Korean	1	1
Greek	0	0	Canadian + Polish	1	1
Irish	0	0	Canadian + Russian	1	1
Italian	0	0	Canadian + Scottish	1	1
Jamaican	0	0	Canadian + Slovak	1	1
Jewish	0	0	Canadian + Chinese + Malaysian	1	1
Lebanese	0	0	Canadian + English + Basque	1	1
Métis	0	0	Canadian + English + Chinese	1	1
Persian	3	2.9	Canadian + English + Scottish	2	2
Polish	0	0	Canadian + English + Scandinavian	1	1
Portuguese	0	0	Canadian + English + Ukrainian	1	1
Scottish	0	0	Canadian + French + German	1	1
Somali	0	0	Canadian + German + Russian	1	1
Ukrainian	0	0	English + Scottish + Dutch	1	1
Vietnamese	1	1	Total	102	100
Other: Czech	1	1			

Appropriate use of these data in subsequent analyses is a challenging task, given that responses can vary according to individual understanding or views about ethnicity and length of time since immigration (Statistics Canada, 2004). However, to facilitate analyses based on ethnicity, it was necessary to collapse these responses into a practical number of categories. Seven ethnic categories were thus identified, each of which had at least four respondents. Consistent with some census analyses, single responses (e.g., Chinese) and multiple responses (e.g., Chinese + Canadian) were separated. The designation of “Other” was used for all single responses where there were fewer than four participants with the same response and for the one multiple response that did not include “Canadian” as part of the combination. The designation of “Canadian + Other” was used for all multiple responses that included Canadian plus at least one other ethnic category where there were fewer than four participants with the same combination of responses. The resulting categories, with their frequencies, are shown in Figure 4.

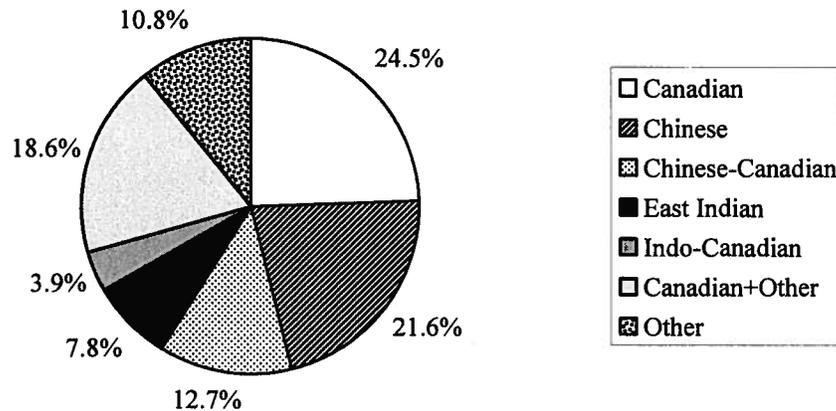


Figure 4. Ethnic background of survey participants

It should be noted that the ethnicity of the respondents varies somewhat from the ethnicity of the population in BC, although it is not possible to directly compare results from the questionnaire with census data. For example, a participant giving a single response of

“Canadian” could potentially be from any ethnic ancestry. However, it is possible to identify some discrepancies, the most notable of which are the underrepresentation of those of aboriginal background (0 respondents, but 4.8% of the population) and the overrepresentation of those of Chinese or Chinese-Canadian background (35.3% of respondents, but 9.7% of the population) and East Indian or Indo-Canadian background (11.8% of respondents, but 6.2% of the population) (BC STATS, 2008).

Job Situation

Of the 103 participants, 79 (76.7%) were planning on working in community pharmacy and 17 (16.5%) were planning on working in hospital pharmacy. While many of these participants would be working in a single community or hospital site, significant minorities (27.9% and 47.1% respectively) would be floating between sites, as shown in Figure 5, including one graduate in the community residency program and five in the hospital residency program. Five participants (4.9%) intended working in some combination of community and hospital practice. Of the two remaining participants, one was hoping to work in a prison treatment centre and the other had applied to another program at UBC and was not planning on working as a pharmacist if the application was successful.

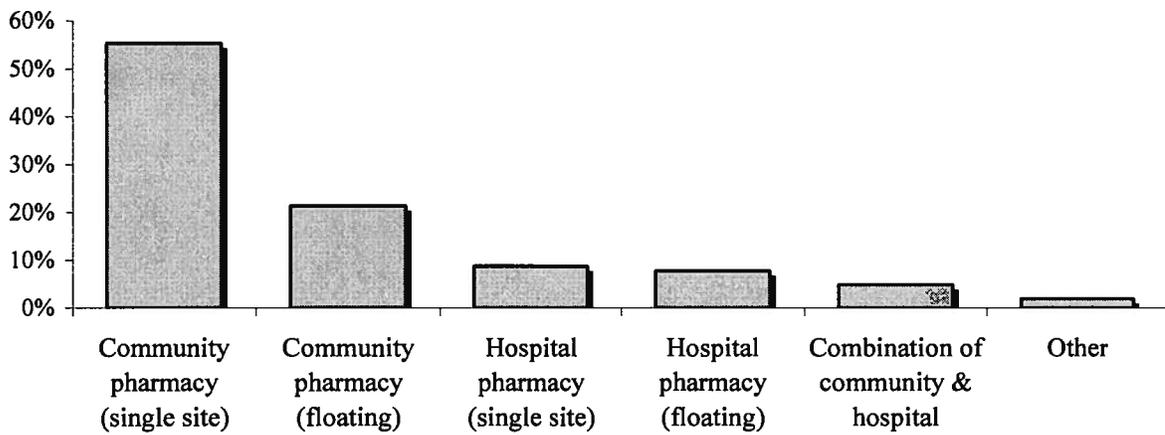


Figure 5. Type of job intended following graduation

At the time the survey was conducted, 87 participants (84.5%) had already accepted jobs or residency positions and 12 (11.7%) had received job offers they were considering. Of the remainder, three (2.9%) planned to seek pharmacy jobs in the next 12 months and one (1.0%) had not made a decision about looking for work. Ninety-four (91.3%) planned to work full time and nine (8.7%) planned to work part time.

Job Location

Ninety-one participants (88.3%) knew where they were going to be living for the first year after graduation. Twelve (11.7%) did not know, but of these eight provided locations where they hoped to be living, leaving only four who were undecided about where they intended to live. Overall, as shown in Table 6, 90 (87.4%) planned to stay in BC and 5 (4.9%) planned to be elsewhere in Canada. Consistent with Andres and Licker (2005), four (3.9%) planned to be in the United States, leaving the four (3.9%) undecided.

Table 6. Location for first job after graduation

Location	n	%	Location	n	%
District 1			District 4		
Vancouver	43	41.7	Kamloops [†]	1	1.0
Richmond	4	3.9	Kelowna	2	1.9
Burnaby	4	3.9	Penticton [†]	1	1.0
New Westminster	1	1.0	Osoyoos*	2	1.9
North Vancouver	1	1.0	Vernon [†]	1	1.0
West Vancouver	1	1.0	District 5		
Whistler*	1	1.0	Salmon Arm [†]	1	1.0
District 2			Nelson*	1	1.0
White Rock	1	1.0	Smithers*	1	1.0
Surrey	2	1.9	Terrace [†]	4	3.9
Delta	1	1.0	Fort St. John [†]	1	1.0
Langley	1	1.0	Out of Province		
Aldergrove	1	1.0	London, ON	1	1.0
Abbotsford	3	2.9	Thunder Bay, ON	2	1.9
District 3			Kenora, ON [†]	1	1.0
Victoria	5	4.9	Montreal, PQ	1	1.0
Nanaimo [†]	4	3.9	Kennewick, WA [†]	1	1.0
Courtenay [†]	1	1.0	Seattle, WA	2	1.9
Sointula*	1	1.0	Tacoma, WA	1	1.0
			Undecided	4	3.9
			Total	103	100

* = Rural or Small Town (RST), [†] = Census Agglomeration (CA)

As Table 6 shows, of the 99 participants who specified a location, 43 (43.4%) planned to live in Vancouver and a further 17 (17.2%) planned to live elsewhere in Metro Vancouver, some in District 1 and some in District 2. These and an additional 17 participants planned to live in CMAs, leaving only 16 (16.2%) planning to live in CAs and 6 (6.1%)

planning to live in RSTs. Figures 6 and 7 show the distribution of first job locations by pharmacy district and by location type, respectively.



Figure 6. Pharmacy district for job location

Figure 7. Location type for job location

Happiness with location

Only those participants who knew where they would be living (n=91) were asked about their happiness with that location. Of these, 85 (93.4%) were happy or very happy with their location, as shown in Figure 8. Five participants (5.5%) were neutral and one (1.1%) was not happy about the location.

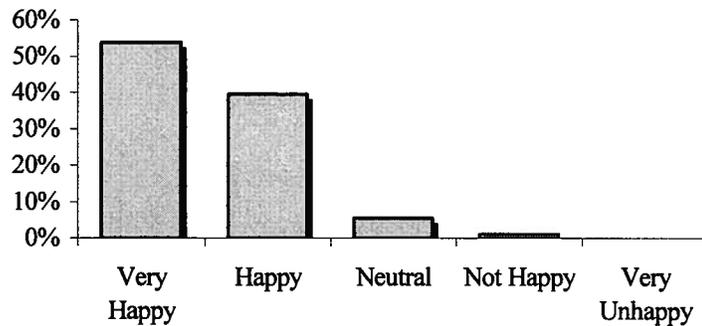


Figure 8. Happiness with job location

Applying values ranging from -2 for “Very Unhappy” to +2 for “Very Happy,” the mean happiness score was calculated to be 1.46 ($SD=0.655$). Mean scores were compared for groups based on job location type (i.e., CMA, CA, and RST) and the demographic variables

of age, sex, marital status, and ethnicity. There were no statistically significant differences in happiness ratings based on any of these variables.

Participants were asked to explain their happiness rating. The participant who gave a rating of “Not happy” indicated that the location (Abbotsford) was far from family and friends (in Vancouver). Of the five participants who gave a “Neutral” rating, four would be located in Metro Vancouver and of these two were concerned about commuting, one was concerned about cost of living and low wages, and one was not happy about floating between work sites. The remaining participant who gave a “Neutral” rating was going to be located in Kelowna and would have preferred either Vernon or Kamloops where family members resided and housing was more affordable.

Those who were happy or very happy with their locations gave reasons such as proximity to family and friends, familiarity with the community, good work conditions, etc., as shown in Figure 9.

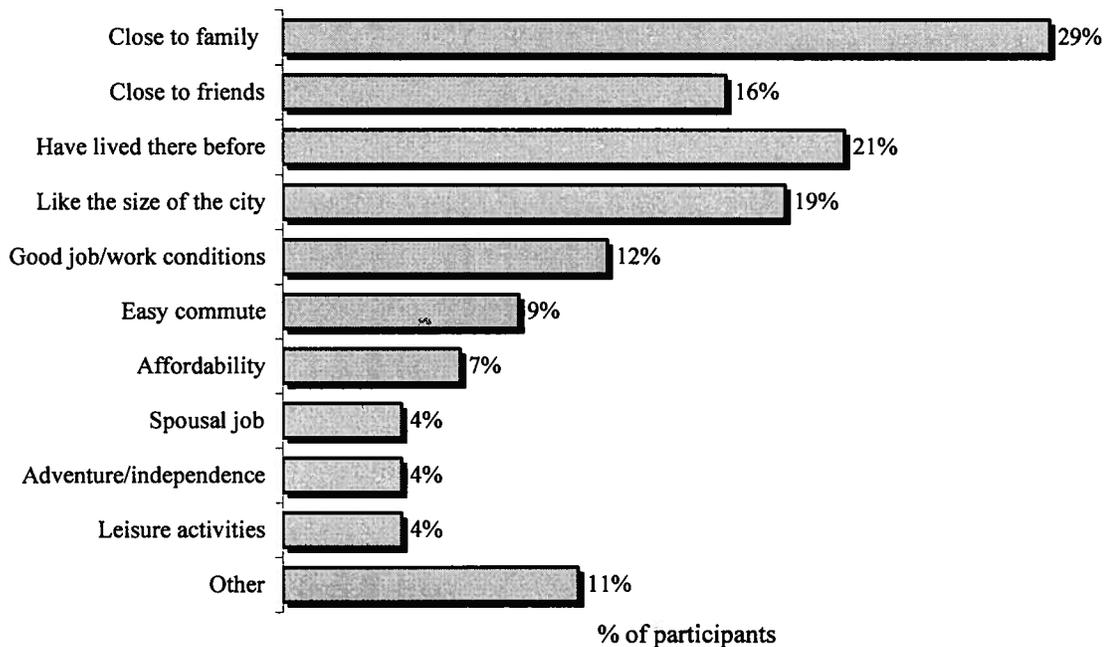


Figure 9. Reasons for happiness with job location

The reasons for happiness were further analyzed to assess for differences associated with location type. The six participants going to RSTs gave the following reasons for their happiness: good work hours, permitting time for snowboarding and other outdoor activities; a job that would allow lots of opportunities for pharmaceutical care activities; proximity to family who would provide child care support; and, in two instances, the fact that the location was the home town. In one case, the participant's spouse had a job in the same community and they had just built a home there. This participant indicated that returning to the location had "always been the plan since starting pharmacy school." None of these reasons stood out as being unique to rural locations, and with the small number of participants in this group it did not seem meaningful to attempt to compare these results with those for participants in other types of locations. However, there were some obvious differences between those in CMAs and CAs, as can be seen in Figure 10. Affordability, the opportunity for adventure and/or independence, and access to leisure activities were more prominent amongst the 15 participants who would be located in CAs, while proximity to friends, familiarity with the community, the (large) size of the community, and the ease of commuting to work were more prominent amongst the 71 participants who would be located in CMAs.

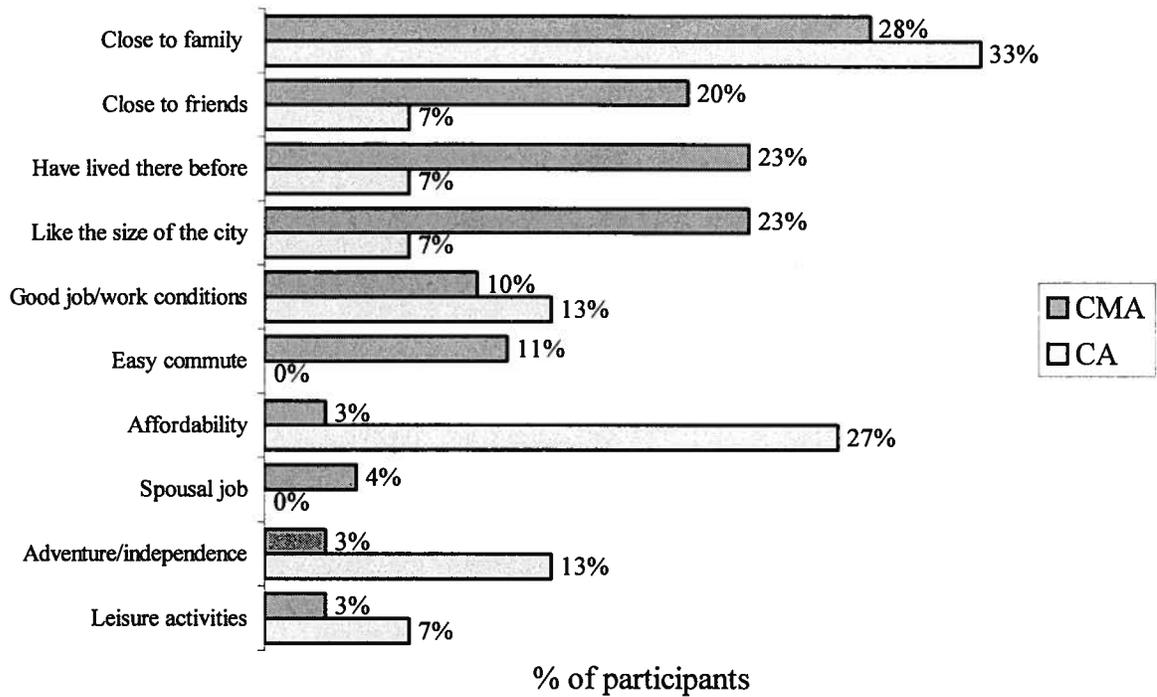


Figure 10. Reasons for happiness with job location in CMAs vs. CAs

Influence of Community Factors and Work Conditions

Participants were asked to rate the degree of influence on their job location of a variety of factors related to the location itself (e.g., having lived there previously, pace of life, etc.) and to the work conditions they anticipated (e.g., having good co-workers, pace of work, etc.). Participants rated these factors using a 4-point scale with the descriptors “No Influence,” “Weak Influence,” “Moderate Influence,” and “Strong Influence.” Applying values from 0 to 3 to these ratings, mean values were calculated for the degree of influence of each factor on the job location. Participants who either gave no response or a rating of “Not Applicable” were not included in these calculations, indicated by the varying number of respondents for each factor seen in Table 7. As this table shows, the strongest influences on the job location were the ability to get an enjoyable job, suitable pace of life, and familiarity

with the location. These factors all have mean ratings between 2 and 3, indicating that, on average, they had a moderate to strong influence on choosing a job location.

Table 7. Influence on job location of community and work factors

Factor	n	Influence Rating Mean \pm SD (Max. = 3.0)
I am living there (or near there) now	76	2.13 \pm 1.135
I have lived there (or near there) in the past	71	2.07 \pm 1.087
I have lived in a similar community	61	1.77 \pm 1.023
Living there will be a new experience	63	1.35 \pm 1.080
The community is not too large for me	82	1.40 \pm 1.142
The community is not too small for me	84	1.74 \pm 1.088
I can get a job I'll enjoy there	91	2.22 \pm 0.827
I will have good co-workers there	80	1.81 \pm 1.020
I can practice pharmacy the way I want	88	1.97 \pm 0.940
The pace of work there will suit me	84	1.89 \pm 0.905
The pace of life there will suit me	92	2.21 \pm 0.859

Further analysis was conducted to determine whether there were differences in the mean ratings based on location type. In most cases, there was no statistically significant difference in the ratings given by those planning to take jobs in CMAs, CAs, or RSTs. For example, as shown in Figure 11, there was no statistically significant difference associated with location type in the degree to which previous residence in the community influenced the job location decision. That is, the mean ratings for those planning to take jobs in CMAs ($M=2.02$, $SD=1.077$), CAs ($M=2.10$, $SD=1.287$), and RSTs ($M=2.75$, $SD=0.500$) are considered equivalent. Henceforth, non-significant findings such as this will not be reported.

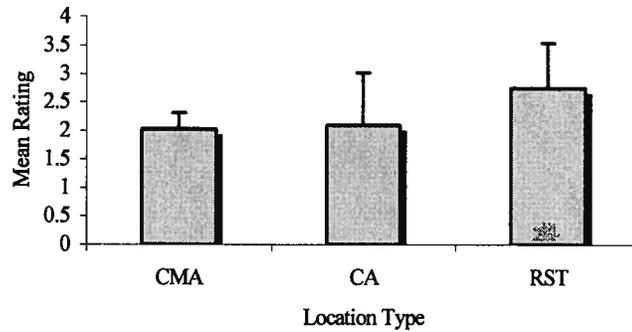


Figure 11. Influence of previous residence in the community by location type

Unlike previous residence, current residence in or near the job location was a stronger influence on those taking jobs in CMAs ($M=2.30$, $SD=1.067$) than in CAs ($M=0.40$, $SD=0.548$) as shown in Figure 12. The intermediate value for those taking jobs in RSTs ($M=1.60$, $SD=0.894$) was not statistically significantly different from either other value.

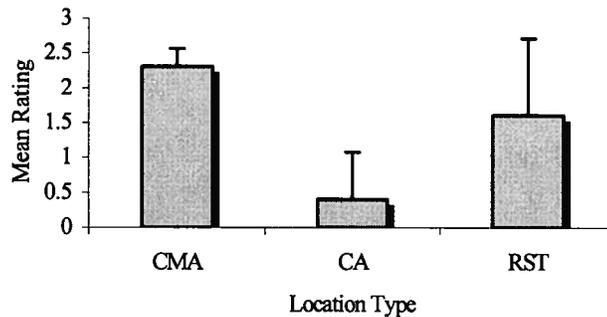


Figure 12. Influence of current residence in the community by location type

A review of the responses on the questionnaire showed that the majority (70.1%) of the participants going to CMAs indicated that “living there (or near there) now” was a moderate or strong influence on their job location, whereas the majority (87.5%) of the participants going to CAs indicated that this either had no influence or was not applicable. The importance of this factor to participants taking jobs in RSTs was intermediate between these two extremes and had larger variation.

The next finding is that, as one might expect, the appeal of a smaller community was greater for those taking jobs in RSTs ($M=2.50$, $SD=0.548$) and CAs ($M=2.00$, $SD=1.211$) than in CMAs ($M=1.13$, $SD=1.049$). Here, “the community is not too large for me” was rated as a moderate or strong influence by 100% and 68.6% respectively of those going to RSTs and CAs. By comparison, only 29.9% of those taking jobs in CMAs rated this factor as a moderate or strong influence, while the majority (50.7%) gave no response or indicated this factor was either had no influence or was not applicable.

Lastly, the job-related factors of ability to practice in the manner desired and the anticipated pace of work were more influential for those taking jobs in RSTs ($M=3.0$, $SD=0$ and $M=2.83$, $SD=0.408$, respectively) than in CAs ($M=1.88$, $SD=1.025$ and $M=1.79$, $SD=0.893$, respectively) or CMAs ($M=1.89$, $SD=0.914$ and $M=1.83$, $SD=0.901$, respectively). Here, the two factors “I can practice pharmacy the way I want to” and “the pace of work will suit me” were rated as being a moderate or strong influence for 100% of those taking jobs in RSTs. There was more variability in the ratings for these factors by the other two groups. Manner of practice was rated as being a moderate or strong influence for 81.3% of those taking jobs in CAs; however, the remainder indicated this factor had no influence on their job location. This factor was rated as a moderate or strong influence by only 45.5% of those taking jobs in CMAs. Similarly, pace of work was rated as a moderate or strong influence by only 68.8% and 44.4% respectively of those taking jobs in CAs and CMAs.

The effect of age, sex, marital status, and ethnicity on the degree of influence of each of the community factors and work conditions on the choice of job location was also assessed. No statistically significant relationships were found.

Influence of Home Town Location

Participants were asked to provide information on where they were living through the years from birth to age 17, at the time of admission to the Faculty of Pharmaceutical Sciences, at the time of the survey, and where they would call “home.” Some of this information was used to identify the community where the participant spent the majority (that is, at least 6) of the 12 years between ages 5 and 17, these being the years hypothesized to be most important in establishing an attachment to a particular community. This community was defined as the participant’s “home town.” Some participants moved sufficiently frequently that they did not spend at least 6 years in single location, and some participants did not specify a job location with which the home town location could be compared. However, it was possible to identify both a home town location and a job location for 93 (90.3%) of the 103 participants.

Amongst these participants, the majority had grown up in CMAs, and there was net movement from other location types into CMAs to take jobs, as illustrated in Figure 13.

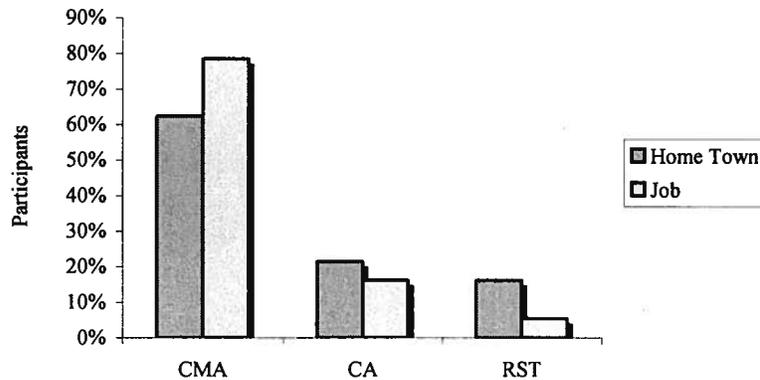


Figure 13. Type of location of home town and job

Further investigation of migration patterns showed that 62 participants (66.7%) were taking jobs in the same type of community as their home town. This included 33 participants

(35.5%) who were taking jobs in their home towns, and an additional 10 (10.8%) who were simply moving between municipalities within Metro Vancouver. Amongst the 31 participants who were moving between location types, the most common move was from a CA into a CMA, as shown in Figure 14. In only five cases (5.4%) was the migration from a larger to a smaller location type.

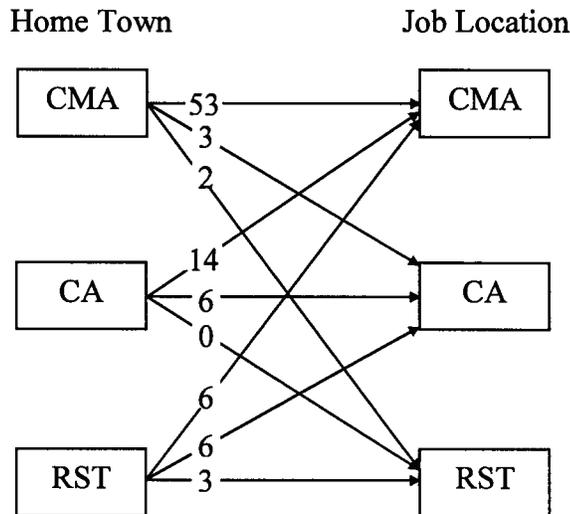


Figure 14. Change of type of location from home town to job

Numerical values were assigned to the location types (CMA=1, CA=2, and RST=3) then used to calculate the degree of movement between location types by subtracting the value for the home town from the value for the job location. Thus, someone who grew up in an RST and was taking a job in a CMA would have a score of $1 - 3 = -2$. Degree of movement was tested for association with age, sex, marital status, and ethnicity. No significant associations were found, with the exception of ethnicity. Here, the degree of movement amongst the mixed group of participants of “Canadian + Other” ethnicity ($M=-0.733$, $SD=0.7037$) was greater than for those of Chinese ethnicity ($M=0.000$, $SD=0.3344$). Further investigation revealed that all of the participants who indicated they

were of Chinese ethnicity had grown up in CMAs, primarily in Metro Vancouver, and all had job locations in CMAs, again primarily in Metro Vancouver, whereas those of “Canadian + Other” ethnicity had grown up in communities scattered around the province, primarily CAs and RSTs, and had job locations in communities around BC and in other provinces, primarily CMAs. Thus, the difference in degree of movement between these two groups is a reflection of a marked difference in home town location rather than ethnicity per se.

There was more movement between geographic areas of the province than between location types, with 51 participants (54.8%) planning to move out of the pharmacy district where they grew up. However, a portion of this migration was due to moves between municipalities within Metro Vancouver, some of which are in District 1 and some of which are in District 2. The most common type of migration was from elsewhere into District 1 (Vancouver), as can be seen in Figure 15. Ten participants were planning to move to District 1 from District 2 (Fraser Valley), three from District 3 (Vancouver Island), six from District 4 (Kootenay/ Okanagan), three from District 5 (Northern BC), and eight from outside the province. Only three participants were planning to leave District 1, including two to District 2 and one to Tacoma. That said, there was little movement among Districts 3, 4, and 5. One participant was moving from District 3 to District 4, one from District 3 to District 5, one from District 4 to District 3, and one from District 4 to District 5.

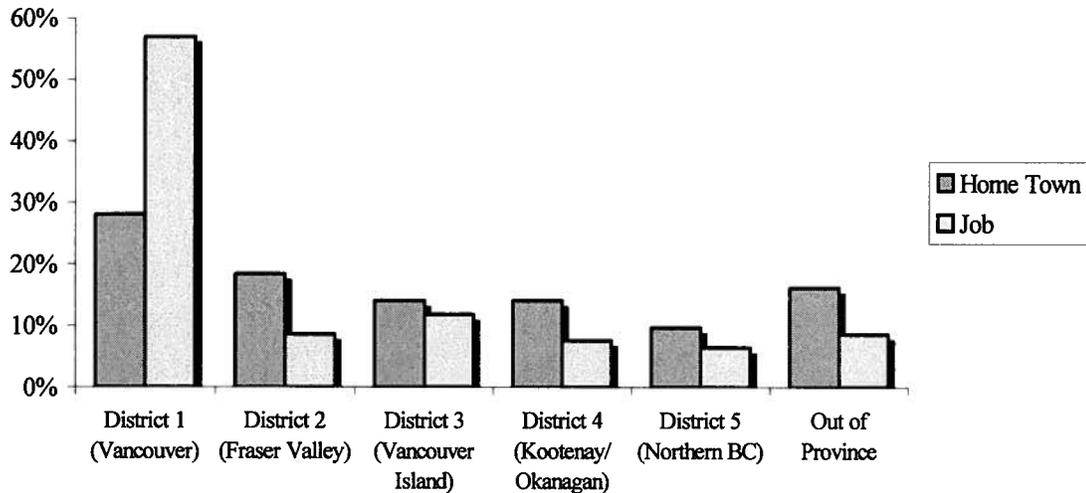


Figure 15. Pharmacy district of home town and job location

Comparison of the job location with the location at various life stages revealed that as participants progressed through their lives, it became steadily more likely that they would take a job in the same community, as shown in Figure 16. For example, only 23 participants (23.2%) were taking jobs in the locations where they were born, and as previously mentioned only 33 (35.5%) were taking jobs where they spent the majority of their years between the ages of 5 and 17, while 51 (51.5%) were taking jobs in the locations where they had been living on admission to the Faculty of Pharmaceutical Sciences. The increasing similarity is almost entirely due to migration into Metro Vancouver, either with the family at younger ages or alone later on, and subsequently taking a job in Metro Vancouver. An even larger number (60 or 60.6%) were taking jobs where they were living at the time of the survey, close to graduation. However, some of these had already moved to the communities where they had accepted jobs, making this location a result of, rather than an influence on, the job location.

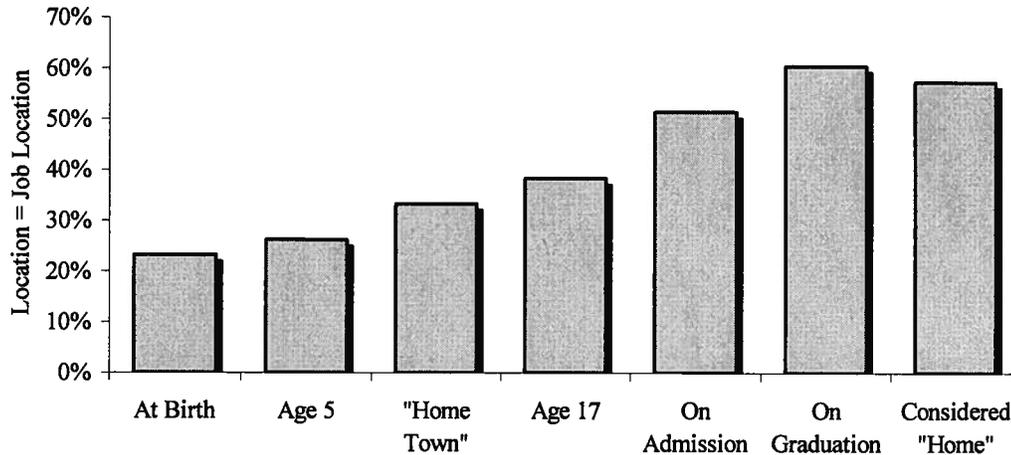


Figure 16. Similarity of job location and location at different life stages

Figure 16 also indicates that as participants moved between communities, their sense of where “home” was moved with them. Of note, though, is the significant minority of participants who were going elsewhere to take their first jobs, including 28 participants (28.3%) taking jobs in locations where they had never previously lived. Of these, 7 had never lived in the same location type and 15 had never lived in the same pharmacy district.

Influence of Family Situation

Participants were asked to provide information about the current locations of immediate family members and romantic partners, the importance to their job location that these significant others be living nearby, and the extent to which feelings of duty, desire for independence, and future relationship and career plans affected their job location. Additionally, participants were asked to rate the importance of proximity to each significant other using a 4-point scale with the descriptors “Not at all Important,” “Not Very Important,” “Somewhat Important,” and “Very Important.” Applying values from 0 to 3 to these ratings, mean values were calculated and are shown in Table 8. As before, participants who gave no response or a rating of “Not Applicable” were not included in the analysis. Table 7 shows

that proximity to significant others is an important factor in choosing a job location, with closeness to children being the most important, followed by spouse, boy/girlfriend, and parents. The mean rating in each of these cases was between 2 and 3, indicating that proximity was somewhat to very important.

Table 8. Importance to job location of proximity to significant others

Significant Other	n	Living in Job Location		Importance of Proximity Mean \pm SD (Max. = 3.0)
		n	%	
Mother	99	51	51.5	} 2.12 \pm 0.890
Father	92	46	50.0	
Siblings	91	48	52.8	1.81 \pm 0.943
Boy/girlfriend	36	26	72.2	2.33 \pm 0.902
Spouse	25	24	96.0	2.76 \pm 0.689
Ex-spouse	3	3	100	0.60 \pm 0.894
Children	7	7	100	2.78 \pm 0.667

There was only one statistically significant difference in these ratings associated with location type, that being the importance of proximity to siblings, which was higher for those taking jobs in CMAs ($M=1.97$, $SD=0.872$) than in CAs ($M=1.19$, $SD=0.981$). The low mean rating for those planning to take jobs in CAs was a result of the fact that 11 of the 16 participants taking jobs in CAs (68.8%) indicated that living near their siblings was not at all or not very important in their choice of job location. By comparison, only 19.5% of those taking jobs in CMAs were this indifferent about living near their siblings.

Differences in ratings of importance of proximity to significant others associated with age, sex, marital status, and ethnicity were also assessed. A few statistically significant differences were found, as follows:

1. Proximity to parents was more important to the 23 to 25 year old participants ($M=2.29$, $SD=0.831$) than to the 26 to 29 year olds ($M=1.80$, $SD =0.834$).
2. Proximity to siblings was more important to the 23 to 25 year old participants ($M=2.02$, $SD=0.884$) than to the 26 to 29 year olds ($M=1.44$, $SD =0.856$).
3. Proximity to one's spouse was more important to those in committed relationships ($M=2.96$, $SD=0.209$) than to those not involved in a relationship ($M=1.67$, $SD=1.528$).
4. Proximity to parents was more important to those of East Indian ($M=2.86$, $SD=0.378$) than Canadian ($M=1.70$, $SD=0.876$) ethnicity.

These findings are not surprising, so were not explored further.

Given the possibility of a preference to live at a distance from certain significant others, participants were also asked about the importance to their job location that their mother and/or father, sibling(s), and ex-spouse did not live in there. This was not very important to the participants, as shown in Table 9, nor were there any significant differences in the degree of importance of living elsewhere associated with job location type.

Table 9. Importance to job location of significant others living elsewhere

Significant Other	n	Importance of Living Elsewhere Mean \pm SD (Max. = 3.0)
Mother &/or Father	74	0.96 \pm 1.066
Sibling(s)	65	0.48 \pm 0.731
Ex-Spouse	7	0.57 \pm 0.787

It seems likely that some participants misread or misinterpreted these questions. For example, seven participants indicated that it was very important to them that their mother and/or father was not living in the same community where they were taking jobs. However,

four of these indicated that their parents were, in fact, both living in that community – and also that it was very important to them that their mother and/or father was living there or nearby. Similar contradictory combinations were found in some of the responses regarding the importance of living at a distance from siblings. Further, while only three participants reported actually having an ex-spouse, seven participants responded to this question, with the four extra responders presumably speculating about how they would feel if they did have an ex-spouse. Given such discrepancies, no further analysis was conducted for these questions.

Participants were asked to rate the degree of influence of a variety of factors related to family relationships and career plans on their job location using a 4-point scale with the descriptors “No Influence,” “Weak Influence,” “Moderate Influence,” and “Strong Influence.” As previously, these ratings were assigned numerical values from 0 to 3 to facilitate quantitative analysis, and participants who gave no response or a rating of “Not Applicable” were excluded. As shown in Table 10, long-term relationship and career plans had the strongest influence on the job location. These were the only two factors with mean ratings between 2 and 3, indicating that they were a moderate to strong influence on the job location. Of interest also is the minimal influence of familial duty, which indicates that the previous finding about the importance of proximity to parents does not arise out of parental expectations of duty from their children or out of the children’s personal sense of duty to their parents. It is also reassuring that there is little conflict in the participants’ families. Seventy-three participants (73.7%) rated this factor as not applicable or as having no influence on their job location decision, and amongst the remainder, only four (4.0%) rated this factor as a strong influence.

Table 10. Influence on job location of relationship and career factors

Factor	n	Influence Rating Mean \pm SD (Max. 3.0)
My parents' feelings of my duty to them	95	0.98 \pm 0.956
My feelings of duty to my parents	95	1.22 \pm 1.084
My parents' support for my independence	93	1.25 \pm 1.060
My desire for independence	93	1.86 \pm 1.119
The presence of conflict in my family	63	0.67 \pm 0.933
My long-term relationship plans	71	2.17 \pm 1.028
My plans for having or raising children	67	1.85 \pm 1.104
My spouse/partner's plans for children	44	1.91 \pm 1.137
My long-term career plans	96	2.10 \pm 0.801
My spouse/partner's long-term career plans	53	1.89 \pm 1.031

There were no statistically significant associations between location type and the ratings on any of these factors. However, there were some differences in degree of influence of these relationship and career factors associated with age, sex, marital status, and ethnicity. Statistically significant findings were as follows:

1. Parental expectation of duty was a stronger influence on the job location for those of Chinese ($M=1.40$, $SD=0.940$) and East Indian ($M=2.14$, $SD=0.378$) ethnicity than those who categorized themselves as Canadian ($M=0.35$, $SD=0.775$).
2. Similarly, a personal feeling of duty to parents was a stronger influence for those of Chinese ($M=1.68$, $SD=1.108$) and East Indian ($M=2.29$, $SD=0.488$) ethnicity than those who categorized themselves as Canadian ($M=0.58$, $SD=0.929$).
3. Parental support for independence was a stronger influence for single participants who were involved in relationships ($M=1.67$, $SD=1.000$) than those who were in committed relationships ($M=0.88$, $SD=1.054$).

4. Similarly, personal desire for independence was a stronger influence for single participants who were involved in relationships ($M=2.29$, $SD=0.976$) than those who were in committed relationships ($M=1.36$, $SD=1.186$).
5. The presence of family conflict was a stronger influence for single participants who were not involved in relationships ($M=0.92$, $SD=0.909$) than those who were in committed relationships ($M=0.22$, $SD=0.548$).
6. Long-term relationship plans were a stronger influence for those in committed relationships ($M=2.70$, $SD=0.703$) and those who were single but involved in relationships ($M=2.31$, $SD=0.891$) than for uninvolved singles ($M=1.32$, $SD=1.057$).
7. Personal plans for having or raising children were a stronger influence for 26 to 29 year old participants ($M=2.29$, $SD=0.849$) than for 23 to 25 year olds ($M=1.52$, $SD=1.109$).
8. Personal plans for having or raising children were a stronger influence for those in committed relationships ($M=2.58$, $SD=0.717$) than for singles who were either involved ($M=1.59$, $SD=1.141$) or uninvolved in relationships ($M=1.29$, $SD=1.007$).
9. Similarly, a spouse or partner's plans for having or raising children was a stronger influence for those in committed relationships ($M=2.55$, $SD=0.739$) than for singles who were either involved ($M=1.50$, $SD=1.225$) or uninvolved in relationships ($M=0.88$, $SD=0.835$).
10. Finally, a spouse or partner's long-term career plans was a stronger influence for those in committed relationships ($M=2.35$, $SD=0.745$) than for singles who were either involved ($M=1.63$, $SD=1.116$) or uninvolved in relationships ($M=1.00$, $SD=0.926$).

None of these findings are particularly surprising, so no further analysis was undertaken to explore these differences.

Influence of Practicum Locations

There are four practicum courses in the pharmacy program, PHAR 369 completed at the end of 2nd year, PHAR 469 completed at the end of 3rd year, and PHAR 479 and PHAR 489 completed during the 4th year in the program. Students are expected to find their own practicum sites for PHAR 369, while sites are normally assigned, with input from students on their geographic preferences, for the three subsequent courses. In the case of the class participating in the survey, however, the assignment system was not functioning. Rather, the Faculty identified sites willing to take students for PHAR 469, 479, and 489 practicums, and students then had the opportunity to select from these in an order determined by lottery (A. Kim-Sing, personal communication, January 15, 2008). The practicum sites were in all location types and all geographic areas of the province, as shown in Table 11.

Table 11. Location types and geographic areas of practicum sites

Location Type & Geographic Area	PHAR 369		PHAR 469		PHAR 479		PHAR 489	
	n	%	n	%	n	%	n	%
Location Type								
CMA	68	68.7	73	73.7	63	63.6	79	79.8
CA	23	23.2	12	12.1	19	19.2	15	15.2
RST	8	8.1	14	14.1	17	17.2	5	5.1
Total	99	100	99	100	99	100	99	100
Pharmacy District								
1 – Vancouver	39	39.4	47	47.5	17	17.2	45	45.5
2 – Fraser Valley	14	14.1	18	18.2	37	37.4	21	21.2
3 – Vancouver Island	13	13.1	12	12.1	24	24.2	20	20.2
4 – Kootenay/Okanagan	18	18.2	19	19.2	19	19.2	10	10.1
5 – Northern BC	5	5.1	3	3.0	2	2.0	3	3.0
Out of Province	10	10.1	0	0	0	0	0	0
Total	99	100	99	100	99	100	99	100

The distributions of the practicum sites by location type shown in Table 10 more closely resemble those of pharmacists and the anticipated job locations of the participants than pharmacies in the province. That is, they are skewed towards CMAs, particularly in the case of PHAR 489, which is a hospital pharmacy practicum course. This is as expected, given that the tertiary care, teaching hospitals most likely to take students are located in larger communities. Also of note is the small number of practicum sites in Northern BC.

Job location was compared to the practicum location for each of the four courses. These locations matched in 36 cases (36.4%) for PHAR 369, 22 cases (22.2%) for PHAR 469, 14 cases (14.1%) for PHAR 479, and 20 cases (20.2%) for PHAR 489. The higher proportion of matches for PHAR 369 is not surprising, given that students were expected to find their own practicum sites for this course. It is also very close to the 35.5% match rate between job location and home town. Further analysis was done to determine if there was a match between any of the practicum locations with the job location for the 28 participants who were taking jobs in communities where they had never previously lived. Matches occurred in only 4 of these cases. Thus, it appears that the experience of working in a community during a practicum was only weakly associated with job location.

As with other factors potentially influencing job location, participants were asked to rate the degree of influence of each practicum location on their job location. Because they had limited choices in their practicum sites, it was anticipated that these locations might have a negative influence on the job location. Thus, in this part of the questionnaire, a 5-point scale ranging from “Strong Negative Influence” to “Strong Positive Influence” was used.

The most frequent response for each of the practicum courses was that the location had no influence on the participants' job location, as can be seen from Figures 17 through 20. Where an influence was noted, it was more likely to be a positive than a negative influence.

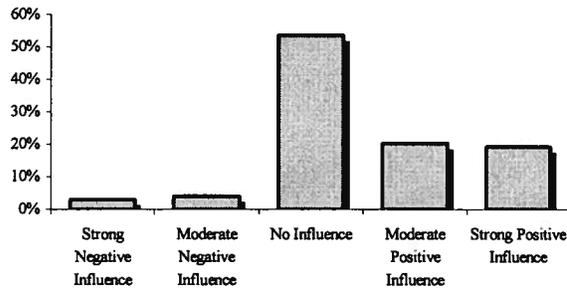


Figure 17. Influence on job location of PHAR 369 location

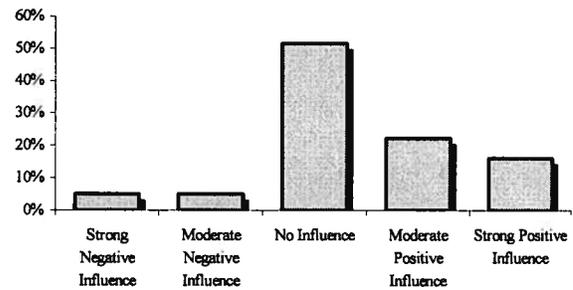


Figure 18. Influence on job location of PHAR 469 location

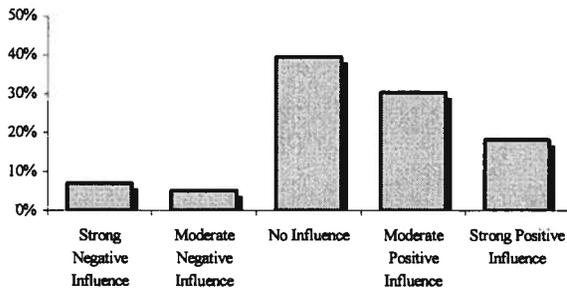


Figure 19. Influence on job location of PHAR 479 location

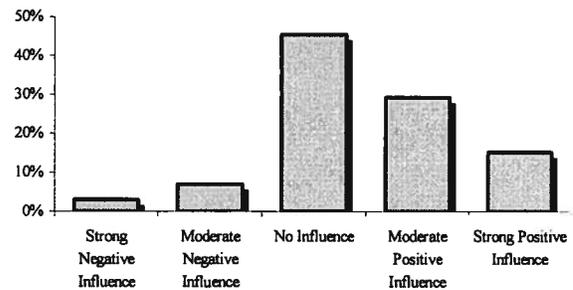


Figure 20. Influence on job location of PHAR 489 location

Values from -2 to $+2$ were applied to the rating scale, and used to calculate the mean influence of each practicum location on the job location, shown in Table 12. There were no statistically significant associations with job location type, nor were there any statistically significant associations with age, sex, marital status, or ethnicity.

Table 12. Influence on job location of practicum locations

Course	Influence Rating Mean \pm SD (Max. = 2.0)
PHAR 369	0.48 \pm 0.952
PHAR 469	0.39 \pm 0.988
PHAR 479	0.47 \pm 1.072
PHAR 489	0.46 \pm 0.940

It is possible that some participants did not interpret these questions in the manner intended, as there are several instances where a practicum location was rated as having a strong positive influence on the job location, yet was in a markedly different community. For example, one participant indicated that a PHAR 369 practicum in Parksville (a CA in District 3) had a strong positive influence on taking a job in Richmond (a CMA in District 1). However, if the participant chose a job in Richmond because s/he did not want to go to a location like Parksville as a result of the practicum experience, this might be considered a negative rather than positive influence of the practicum location on the job location. Similar examples can be found in the responses for each of the four practicum courses.

An alternate explanation here is that the influence of the practicum on the job location might be based on attributes other than the location itself, such as management style or support for clinical activities. For example, if the practicum in Parksville and the job in Richmond were with the same pharmacy chain, the participant's practicum experience might lead him/her to feel the company would be a good employer and thus a positive influence on the job location. Open-ended questions asking participants to explain their responses would have helped in the interpretation of these data.

Influence of Leisure Activities

Participants were asked to provide information on the types of activities they enjoyed during their leisure time. The categories provided on the questionnaire were solo sports, team sports, other sports or fitness activities, outdoor activities, activities at home, commercial entertainment, social activities, religious and/or spiritual activities, community or volunteer activities, and other leisure activities. Up to three responses could be provided in each category, which were then combined for subsequent analysis. As might be expected, the participants engaged in many different types of activities, although it should be noted that they reported many more sports/physical and cultural/entertainment than religious or volunteer activities. For ease of analysis, activities were combined in logical groups (e.g., running and jogging were combined as running, and going to bars and going to pubs were combined as going to pubs), and those activities mentioned by only one or two people were omitted. This reduced the number of activities to 29 different sports and physical activities; 22 cultural, entertainment, and social activities; 3 religious or spiritual activities; and 7 community or volunteer activities.

Chi-Square Goodness of Fit tests were applied to these activities to assess for associations with home town type and with job location type. The null hypothesis in these tests is that the proportion of participants engaging in a particular activity will be equal to the proportion of participants growing up or taking jobs in CMAs (=62.5% for upbringing and 77.8% for job), CAs (=21.9% for upbringing and 16.2% for job), and RSTs (=15.6% for upbringing and 6.1% for job). A full reporting of these tests is provided in Appendix III, while only the statistically significant results are reported here. Because it is not possible to conduct this type of test on a multiple response variable in SPSS, the χ^2 values were

calculated in an Excel spreadsheet and compared to critical values for the χ^2 distribution (Spatz, 2005, p.389). Thus, exact p -values could not be determined.

Virtually all activities were reported in the expected proportions, including sports and outdoors activities such as running, volleyball, and camping; cultural, entertainment, and social activities such as attending concerts, reading, and dining out; religious activities such as attending services; and community and volunteer activities such as volunteering at a hospital or soup kitchen. The one activity reported in unexpected proportions by home town type was snowmobiling. This was only reported by four participants, all of who grew up in CAs and RSTs. The activities reported in unexpected proportions by job location type were playing baseball, fishing, skiing or snowboarding, participating in ultimate, creative arts such as photography and painting, and volunteer coaching, as shown in Table 13.

Table 13. Activities with significant relationship to job location type

Activity	CMA		CA		RST		χ^2	p
	n_{observed}	n_{expected}	n_{observed}	n_{expected}	n_{observed}	n_{expected}		
Baseball	6	10	4	2	3	1	9.52	<0.01
Fishing	4	6	4	1	0	0	6.92	<0.05
Skiing/boarding	8	14	6	3	4	1	13.51	<0.01
Ultimate	2	3	0	1	2	0	13.68	<0.01
Arts/crafts	5	9	4	2	2	1	6.87	<0.05
Coaching	4	6	4	1	0	0	6.92	<0.05

In each of these cases, the χ^2 tests violated the recommendation that the expected frequency in each cell should be greater than 5. However, the results have still been reported, because these tests have been shown to give accurate conclusions even in these cases (Spatz, 2005, p. 311-312). The tests were also repeated combining those in CAs and RSTs. This did

not eliminate the violations, but did make them less severe. Three changes occurred, namely that fishing, ultimate, and coaching no longer had an association with job location type.

Visual representations of the general associations between job location type and sports-oriented and entertainment-oriented activities were created using correspondence analysis. The resulting biplots, shown in Figures 21 and 22, demonstrate the minimal connection between most activities and job location type, with a few exceptions. This is confirmed by the values for total inertia, determined using XLSTAT®, which are 0.144 and 0.075 respectively. These are much closer to the minimum value of 0 than the maximum of 2 for these two-dimensional analyses (Greenacre, 2007, p. 29).

Figure 21 shows the similarity in distribution of rollerblading, golf, playing tennis, and going to the gym, and the association of these with jobs in CMAs (in the lower right quadrant); the similarity in distribution of hunting, fishing, and snowmobiling, and the association of these with jobs in CAs (in the upper left quadrant); and the similarity in distribution of skiing/snowboarding and baseball, and the association of these activities, plus ultimate, with jobs in RSTs (in the upper right quadrant). Here, the x-axis accounts for 64.1% of the total inertia, and the y-axis accounts for 35.9% of the total inertia.

Figure 22 shows the predominance of city-based activities, including dining out, shopping, and attending concerts, the theatre, and the opera, and the association of these activities, along with poker and bowling, with jobs in CMAs (on the right half); the similarity in distribution of playing video or computer games and eating, and the association of these with jobs in CAs (in the lower left quadrant); and the association of arts and crafts with jobs in RSTs (in the upper left quadrant). In this case, the x-axis accounts for 66.5% of the total inertia, and the y-axis accounts for 31.5% of the total inertia.

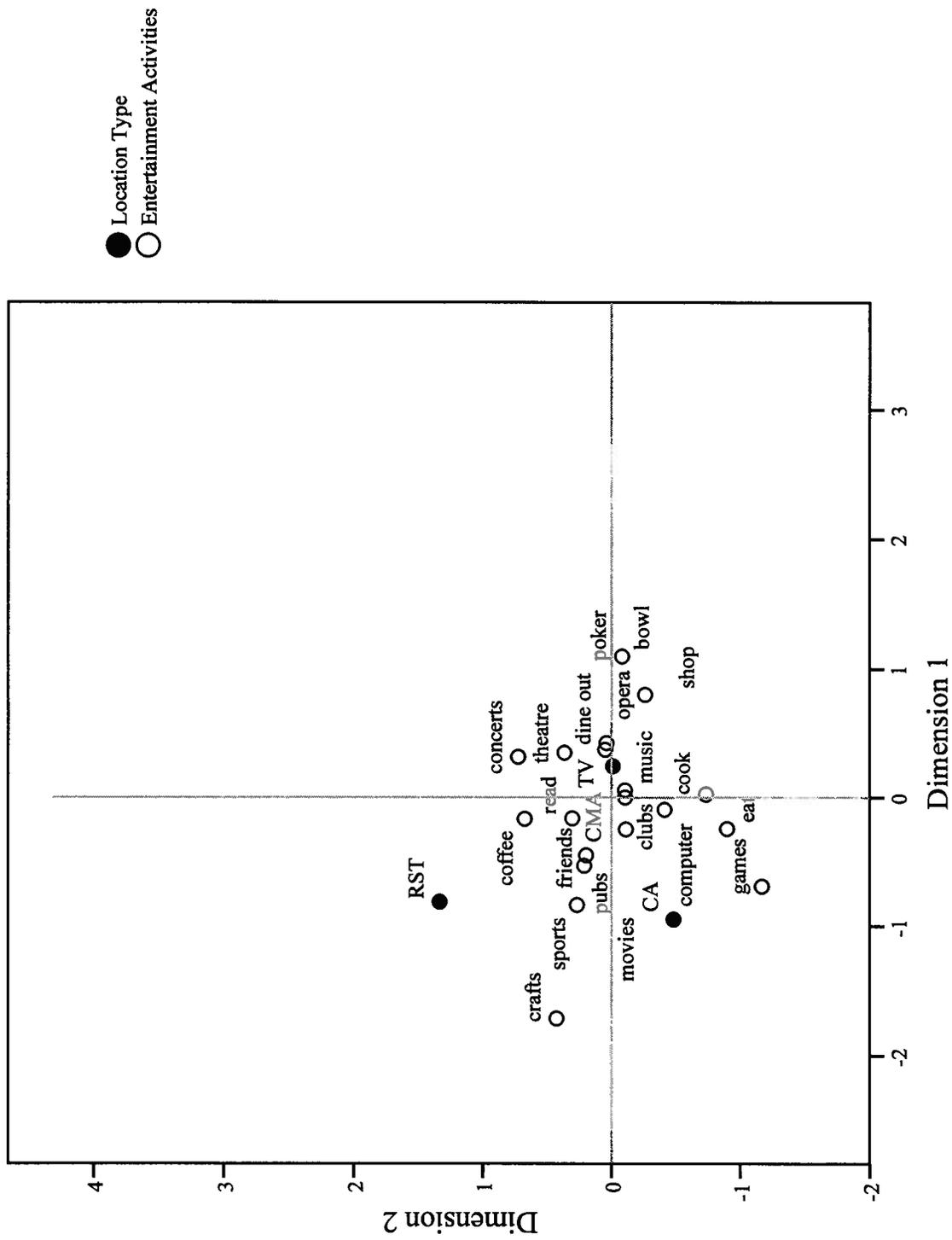


Figure 22. Biplot of job location type and entertainment activities

A few of the sports and physical activities reported were particularly associated with the wilderness (i.e., camping, fishing, hiking, hunting, rock or mountain climbing, and snowmobiling), while some of the entertainment activities were particularly associated with the amenities of larger cities (i.e., dining out, going to clubs and lounges, attending the theatre, opera, and symphony or other musical concerts, attending professional sports games, and shopping). Thus, these particular activities were singled out to determine if the total number of these activities reported by a participant was associated with type of job location or any demographic variables. The results of these analyses are given in Appendix III. The statistically significant findings are that more wilderness activities were reported by those taking jobs in CAs ($M=1.93$, $SD=0.884$) than in CMAs ($M=1.01$, $SD=0.957$) and by males ($M=1.45$, $SD=0.925$) than females ($M=1.02$, $SD=1.00$), while more city-based activities were reported by females ($M=1.44$, $SD=1.182$) than males ($M=0.94$, $SD=1.031$).

Looking at patterns of leisure activities, some participants reported mainly sports and physical activities, while others reported mainly cultural and entertainment activities. Thus, the proportion of the leisure activities that was sports-oriented and that was entertainment-oriented was calculated for each participant, and analyses were undertaken to determine if a predominance of either of these categories was associated with type of job location or any demographic variables. The findings mirror those for wilderness and city-based activities, with a larger proportion of sports and physical activities reported by those taking jobs in CAs ($M=0.59$, $SD=0.130$) than in CMAs ($M=0.48$, $SD=0.151$) and by males ($M=0.54$, $SD=0.151$) than females ($M=0.47$, $SD=0.150$), and a larger proportion of cultural, entertainment, and social activities reported by females ($M=0.47$, $SD=0.153$) than males ($M=0.39$, $SD=0.150$).

Participants were also asked to rate the degree of influence of various types of leisure activities on their job location. As previously, responses on a 4-point scale ranging from “No Influence” to “Strong Influence” were assigned numerical values from 0 to 3. Participants who gave a rating of “Not Applicable” were excluded from the analysis. As shown in Table 14, entertainment- and sports-oriented activities had a greater influence on job location than religious or volunteer activities, although with mean ratings between 1 and 2 even the sports and the entertainment activities were only of weak to moderate influence.

Table 14. Influence on job location of leisure activities

Type of Leisure Activities	n	Influence Rating Mean \pm SD (Max. = 3.0)
Sports and physical activities	97	1.67 \pm 1.058
Cultural, entertainment, and social activities	97	1.94 \pm 1.078
Religious and spiritual activities	81	0.70 \pm 1.101
Community and volunteer activities	91	1.04 \pm 0.906

Two statistically significant associations with job location type were identified and explored further. Access to sports and physical activities was a greater influence on those taking jobs in CAs ($M=2.63$, $SD=0.619$) than in CMAs ($M=1.44$, $SD=1.033$). Here, 93.8% of participants taking jobs in CAs, compared to only 50.7% of those in CMAs, rated availability to these types of leisure pursuits as a moderate or strong influence on their choice of job location. Conversely, access to cultural, entertainment, and social activities was a greater influence on those taking jobs in CMAs ($M=2.05$, $SD=1.077$) than in RSTs ($M=0.83$, $SD=0.753$). In this case, 70.1% of those taking jobs in CMAs, compared to only 16.7% of those in RSTs, rated availability to these types of leisure pursuits as a moderate or strong

influence on their choice of job location. No statistically significant associations were found with age, sex, marital status, or ethnicity.

Influence of Financial Factors

Participants were asked about the salary they were expecting for their first jobs, their level of debt, whether they had received scholarships or financial aid that limited their choice of job location, the monetary benefits they expected to receive from their employers, and the degree of influence of these financial factors on their job location.

Salary and Debt

The mean salary expected was around \$70,000, with an even distribution across a range from below \$50,000 to over \$90,000 as shown in Figure 23. The true mean salary might be somewhat higher or lower than \$70,000 as participants were only asked to indicate the range in which their salary fell and were not asked to specify the extent to which their salary might be below \$50,000 or over \$90,000 if they selected these responses on the questionnaire.

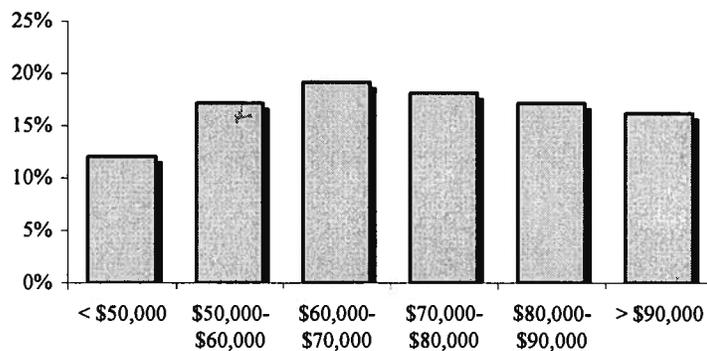


Figure 23. Salary expectations for first job

The mean debt on graduation was around \$20,000, with approximately one third of the participants having no debt, one third having debt of less than \$40,000, and one third having debt exceeding \$40,000, as shown in Figure 24.

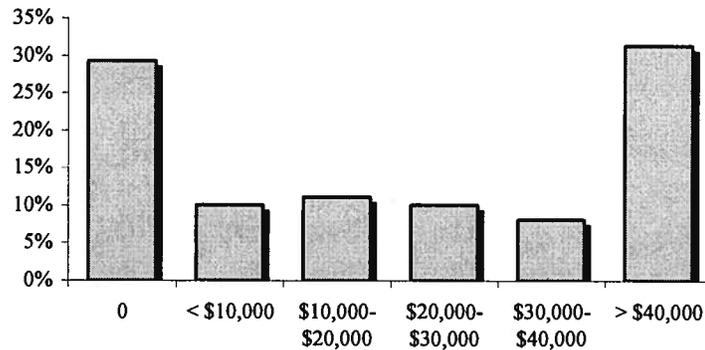


Figure 24. Debt level upon graduation

It is possible that the mean debt was higher than estimated, as the actual debt for those who indicated that their debt exceeded \$40,000 was not requested. However, two participants did write in the questionnaires that their debt exceeded \$100,000 and one added two “greater than” symbols and wrote “Ha, ha, ha” beside the “> \$40,000” option for this question on the questionnaire, indicating that his or her debt was much higher.

As for other variables, mean salary and debt levels were assessed for their relationship with job location type and demographic variables. Precise means could not be calculated, as participants were asked to indicate a range within which their expected salary and their debt would fall rather than an exact value. Thus, approximate means, without standard deviations, have been reported. Statistically significant findings were as follows:

1. Those taking jobs in CAs were expecting larger salaries ($M \approx \$80,000$ to $\$90,000$) than those in CMAs ($M \approx \$60,000$ to $\$70,000$).

2. Males were expecting larger salaries ($M \approx \$70,000$ to $\$80,000$) than females ($M \approx \$60,000$ to $\$70,000$).
3. Higher debt was reported by 26 to 29 year olds ($M \approx \$20,000$ to $\$30,000$) than 23 to 25 year olds ($M \approx \$10,000$ to $\$20,000$).
4. Higher debt was also reported by those in committed relationships ($M \approx \$20,000$ to $\$30,000$) than by those who were single and not involved in a relationship ($M < \$10,000$).
5. Finally, higher debt was also reported by those who described themselves as Canadian ($M \approx \$20,000$ to $\$30,000$) than those of Chinese ethnicity ($M < \$10,000$).

Differences in salaries were further analyzed by reviewing the cases of those reporting the lowest salaries ($< \$50,000$ and $\$50,000$ to $\$60,000$) and the highest salaries ($\$80,000$ to $\$90,000$ and $> \$90,000$). Of the 29 participants reporting the lowest salaries, 3 indicated they would be working part time rather than full time. Twenty-six (89.7%) had job locations in Metro Vancouver and 29 (100%) had job locations in CMAs. Also included in this group were 15 (88.2%) of the 17 participants taking hospital positions, all 15 of who were female. These included the 12 participants taking hospital residency positions, 11 of who would be in BC and receiving 85% of a normal starting salary (BC Pharmacy Practice Residency Program, 2004). The one community pharmacy resident, who would be receiving a stipend of $\$25,000$ for the year (P. Miller, personal communication, March 18, 2008), was also in this low salary group. In comparison, of the 33 participants reporting the highest salaries, only 4 (12.1%) had job locations in Metro Vancouver and a total of 16 (48.5%) had job locations in CMAs. Of the remaining 17 participants in this group, 15 (45.5%) had job locations in CAs and 2 (6.0%) were in RSTs. Also included in this group were eight of the nine participants with job locations outside the province, four in Ontario, one in Quebec, and

four in Washington State. Finally, all participants in this high salary group were taking community pharmacy positions.

Differences in debt were also further analyzed by reviewing the cases at the extremes, that is, those with no debt and those with debt exceeding \$40,000. In particular, home town location, location on admission, and current location of parents were compared to determine whether participants might have been able to live at home while attending school. Of the 29 participants reporting no debt, 20 (69.0%) were living in the Metro Vancouver area along with their parents, so could have been living at home. Four (13.8%) had moved to Metro Vancouver on their own prior to admission to the Faculty of Pharmaceutical Sciences, and only 5 (17.2%) were living outside Metro Vancouver on admission. By comparison, of the 31 participants reporting debt over \$40,000, 9 (29.0%) were living in the Metro Vancouver area along with their parents. Ten (32.3%) had moved to Metro Vancouver on their own prior to admission to the Faculty of Pharmaceutical Sciences, and 12 (38.8%) had been living outside Metro Vancouver on admission, 2 of who were living outside BC.

Given the cost of raising a family, the debt level of those participants with children was also reviewed. Of the seven participants with children, four (57.1%) reported debt exceeding \$40,000, one of who was a single parent. The remaining three had low levels of debt, with one reporting no debt, one reporting debt under \$10,000, and one single parent reporting debt between \$10,000 and \$20,000. The two single parents were both males, with job locations in the same location as their children. In one case the ex-partner was in the same location and in the other case the location of the ex-partner was not reported. The nature of the custody and child support arrangements, which might contribute to debt, was not requested so is unknown.

Financial aid limiting job location choice

A total of eight survey participants (7.8%) reported receiving scholarships or other financial aid that would limit their choice of job locations. Of these, one had not yet made a decision but was hoping to go to either Kelowna or Victoria; one each was going to Vancouver, Richmond, and Osoyoos; and two each were going to Terrace and Thunder Bay. No additional details were requested about the scholarships or financial aid, such as the source, the dollar value, or the conditions placed on employment after graduation, but some participants wrote clarifying comments on the questionnaire. For example, at least four (the two going to Terrace and the two going to Thunder Bay) were very likely benefiting from the Shoppers Drug Mart Pharmacy Scholarship Program, although only one actually stated this. Two of these indicated that they had received \$15,000 per year for three years of schooling in exchange for a commitment to work for two years in an underserved area identified by the company. At the time, there were two scholarship levels available in this program, either \$10,000 or \$15,000 per year, with more freedom for the recipient to choose from available job locations at the \$10,000 level (L. Landon, personal communication, August 29, 2007). One participant stated that s/he had been told that s/he “would go to a location [I] and the company agreed upon, which I was informed would be more rural than urban (i.e., not Lower Mainland).” That said, the job locations of the scholarship recipients are mainly CMAs (Vancouver, Richmond, Kelowna or Victoria, and Thunder Bay), with only one CA (Terrace) and one RST (Osoyoos). Also, in four cases (50%) the job location was a location where the participant had previously lived, and in the remaining cases the job location was a new location to the participant.

Despite receiving substantial funding while attending school, these participants still had debt. While none reported debt over \$30,000, the mean debt for scholarship recipients (in the \$10,000 to \$20,000 range) was not statistically significantly different from that of non-recipients. Scholarship recipients were also receiving the same salaries and benefits as non-recipients. For example, the mean salary for scholarship recipients was in the \$70,000 to \$80,000 range, which was not statistically different from that of non-recipients, and five of the six who were taking jobs outside Metro Vancouver were also receiving signing bonuses between \$5,000 and \$30,000 and moving allowances between \$2,000 and \$10,000.

Financial incentives offered by employers

Participants were asked about various financial incentives that might be offered by employers, including the signing bonuses and moving allowances already mentioned, plus reimbursement of licensing exam costs, annual license fees, membership fees for the BC Pharmacy Association (BCPhA), tuition fees for the training to become a certified provider of emergency contraception (ECP), and other continuing education costs.

Among the 99 participants with a known job location, the most common financial incentives offered by their employers were payment of annual licensing fees [\$645 in BC (College of Pharmacists of BC, 2007b)], expected by 74 participants (74.8%), and payment of the licensing exam fees [\$1,800 (Pharmacy Examining Board of Canada, 2008)], expected by 69 participants (69.7%). Thirty-eight (38.4%) were eligible for reimbursement for continuing education (CE) costs, and although participants were not asked to specify a limit on CE expenses, figures of \$200 and \$300 per year were written in by two participants. Thirty-one participants were receiving a BCPhA membership [\$375 for the first year and \$500 thereafter (BC Pharmacy Association, 2006b)], while one was receiving a Canadian

Pharmacists Association (CPhA) membership instead [\$330 (Canadian Pharmacists Association, 2008b)]. Twenty-seven participants (27.3%) were expecting to receive signing bonuses, ranging from \$2,000 to \$40,000 ($M=\$11,865$), and 25 (25.3%) were expecting to receive moving allowances, ranging from \$500 to \$10,000 ($M=\$3750$). Twenty-two (22.2%) were expecting to have their tuition paid for the course to become a certified ECP provider [\$75 (C. Brady, personal communication, March 19, 2008)]. Similarly, one participant each was expecting the \$450 tuition to be paid for the course to become a Certified Diabetic Educator (Canadian Diabetes Educator Certification Board, 2007) and the course to become certified to monitor anticoagulant therapy, which has been available through the BCPhA for \$250 (BC Pharmacy Association, 2006a). Other financial benefits mentioned by one participant each were having a paid job while in school; repayment of student loans of approximately \$32,000 over a period of three years; reimbursement of \$7,000 in tuition fees after two years; provision of a car and phone to support a province-wide floating position; and extended health benefits.

Chi-Square Goodness of Fit tests were conducted to determine if the receipt of financial incentives from employers was associated with job location type. As Table 15 shows, the only statistically significant deviations from the expected proportions were for signing bonuses and moving allowances, which were higher than expected for CAs and RSTs. Collapsing CAs and RSTs into one category to avoid expected frequencies of less than 5 did not change these results. Further analysis of the cases where a signing bonus or moving allowance was being provided by the employer indicated that, with the exception of one recipient of a signing bonus, all participants receiving these benefits had taken jobs outside of the Metro Vancouver area.

Table 15. Relationship of job location type with financial incentives

Incentive Provided	CMA		CA		RST		χ^2	<i>p</i>
	n_{observed}	n_{expected}	n_{observed}	n_{expected}	n_{observed}	n_{expected}		
Signing bonus	14	23	13	5	3	2	18.12	<0.001
Moving costs	11	22	14	5	3	2	26.06	<0.001
PEBC fees	51	54	15	11	3	4	1.79	>0.10
License fees	54	58	15	12	5	5	1.03	>0.10
BCPhA fees	20	24	8	5	3	2	3.12	>0.10
ECP training	17	17	5	4	0	1	1.92	>0.10
CE costs	31	30	5	6	2	2	0.33	>0.10

Chi-Square Goodness of Fit tests were also conducted to assess for associations between receipt of each financial incentive and the demographic variables of age, sex, marital status, and ethnicity. The only statistically significant association was between ethnicity and moving allowances. It was not possible to identify the group(s) where the significant differences between expected and observed frequencies occurred, as the χ^2 test is an omnibus test. However, further analysis was conducted for the group with the single largest percentage difference between the expected and observed frequency. This occurred amongst those describing themselves as Canadian, who received moving allowances in higher than expected numbers. This finding is likely actually based on the job location of these participants rather than their ethnicity per se, as moving allowances were most often received by those taking jobs in CAs, and those of Canadian ethnicity took jobs in CAs in disproportionately high numbers. Specifically, moving costs were provided to 14 of 16 participants taking jobs in CAs (87.5%), compared to 3 of 6 (50%) in RSTs and 11 of 66 (16.7%) in CMAs. Of the 25 participants describing themselves as Canadian, 10 (40%) were

taking jobs in CAs, compared to 5 of 18 (27.8%) of the Canadian + Other group, 1 of 20 (5%) of the Chinese participants, and none (0%) of the participants of other ethnicities.

Influence of financial factors

Participants were asked to rate the influence of salary, debt, and other financial factors on their job location using the same 4-point scale seen on other sections of the questionnaire, namely from “No Influence” to “Strong Influence.” As previously, numerical values from 0 to 3 were assigned to the descriptors on the rating scale and participants who gave no response or a response of “Not Applicable” were excluded from the calculation of mean ratings and further analysis. The degree of influence of each financial factor on type of job location was assessed, with the results shown in Table 16. The influence associated with the terms of scholarships or financial aid is reported separately for all participants and for the eight participants who received funding that limited their choice of job locations. As might be expected, the influence of this factor was very strong for these latter participants. In general, though, financial factors were only of weak to moderate influence, with mean ratings between 1 and 2. Of all the financial factors, salary had the greatest influence on job location.

Table 16. Influence on job location of financial factors

Financial Factor	n	Influence Rating Mean \pm SD (Max. = 3.0)
Salary	96	1.90 \pm 0.989
Level of debt	85	1.39 \pm 1.166
Terms of scholarship/aid (overall)	58	0.71 \pm 1.009
Terms of scholarship/aid (amongst recipients)	8	2.50 \pm 0.926
Signing bonus, fees paid, or similar benefits	89	1.22 \pm 1.074
Cost of living in job location	95	1.57 \pm 1.182

There were statistically significant differences associated with location type for three of these factors, namely salary, level of debt, and the provision of monetary benefits by employers. In each case, these financial factors were more influential on those taking jobs in CAs than CMAs. In the case of salary, 12 of the 16 participants taking jobs in CAs (75%) rated salary as a moderate to strong influence and none said salary had no influence on their job location ($M=2.57$, $SD=0.756$) while only 51 of the 77 taking jobs in CMAs (66%) gave these ratings and a further 12 (15.6%) said salary had no influence ($M=1.76$, $SD=1.005$). Similarly, 9 participants taking jobs in CAs (56.3%) rated debt as a moderate to strong influence and only 1 (6.3%) said debt had no influence on their job location ($M=2.23$, $SD=1.092$), while only 27 of those taking jobs in CMAs (35.1%) said debt was a moderate to strong influence and 24 (31.1%) said it had no influence ($M=1.23$, $SD=1.134$). Finally, 10 participants taking jobs in CAs (62.5%) rated monetary benefits as a moderate to strong influence on their job location and only 1 (6.3%) said these types of benefits had no influence ($M=1.93$, $SD=0.917$), while only 24 of those taking jobs in CMAs (31.2%) said monetary benefits were a moderate to strong influence and a further 26 (33.8%) said these benefits had no influence on their job location choice ($M=1.10$, $SD=1.059$).

Relationships between the degree of influence of these various financial factors on job location and the demographic variables of age, sex, marital status, and ethnicity were also assessed. There were few statistically significant relationships. However, there were several associations related to sex, with salary, monetary benefits, and cost of living being of greater influence on job location for males than females. There was also an association between marital status and the influence of debt, with debt being a greater influence on those in committed relationships than those who were single and not involved in a relationship.

In the case of salary and sex, 25 of the 31 male participants (80.7%) rated salary as a moderate to strong influence on their job location and only 1 (3.2%) said salary had no influence ($M=2.46$, $SD=0.793$). In contrast, 43 of the 68 female participants (63.2%) rated salary as a strong to moderate influence and a further 11 (16.2%) said salary had no influence ($M=1.66$, $SD=0.971$). Similarly, 14 males (45.2%) rated monetary benefits as a moderate to strong influence on their job location and only 1 (19.4%) said these had no influence ($M=1.57$, $SD=1.136$) while 21 females (30.9%) said these benefits were a moderate to strong influence and 23 (33.8%) said these had no influence ($M=1.07$, $SD=1.014$). Finally, 20 males (64.5%) rated cost of living as a moderate to strong influence on their job location and only 4 (12.9%) said it had no influence ($M=2.11$, $SD=1.133$) while 32 females (47.1%) said cost of living was a moderate to strong influence and 22 (32.4%) said it had no influence ($M=1.34$, $SD=1.136$).

In the case of the association between debt and marital status, 12 of the 27 participants in committed relationships (44.4%) rated debt as a moderate to strong influence on their job location and 4 (14.8%) said it had no influence ($M=1.75$, $SD=1.189$) while only 13 of the 42 uninvolved singles (31.0%) said debt was a moderate to strong influence and 17 (40.5%) said it had no influence ($M=1.00$, $SD=1.111$).

Predicting Job Location Type

The final analysis conducted in this study was a logistic regression to determine the factor or combination of factors most useful in predicting the type of location where a pharmacy graduate would be likely to take his/her first job. When using SPSS for this type of analysis, the dependent variable must be dichotomous and the independent variables may be either dichotomous or continuous (Pallant, 2005, p. 160). Thus, the three job location types

were collapsed to two, namely CMAs and non-CMAs (consisting of CAs and RSTs combined), and ordinal variables were reduced to two values. For example, ratings of the degree of influence of various factors on job location, originally coded on a 4-point scale from “No Influence” to “Strong Influence,” were recoded as “Strong” (consisting of “Strong” and “Moderate” influence) and “Weak” (consisting of “Weak” and “No”) influence.

Many variables were available to use in this analysis, so an effort was made to reduce these to a useable number emphasizing statistically significant associations with job location type and large effect size, and ensuring that variables associated with each hypothesis were included. As an example, while home town location was hypothesized to be associated with job location, location on admission was found to have a stronger association, so was used in this analysis. Simplicity and practicality were also considered in the selection of variables, with the ideal being a small number of measurable or actionable factors that would provide a high rate of correct predictions with few outliers. For example, it was difficult to use ethnicity in this analysis, given that a fairly large number of ethnic groups needed to be somehow reduced to a dichotomy. Not only that, but it was not clear how ethnicity as a predictor could be applied in practice, given that it would not be acceptable practice to use ethnicity in selecting students for admission or graduates for employment. Nevertheless, many variables were used initially, including ethnicity, and both forwards and backwards regressions were conducted to identify the factors most and least important in predicting whether a participant would take a job in a non-CMA.

First it should be noted that correct predictions could be made by chance 77.8% of the time simply by assuming that no graduates would take jobs in non-CMAs. The intention with this analysis, then, was to increase the rate of correct prediction. Using two factors, namely

living in a non-CMA at the time of admission and the number of non-CMA practicum locations, the rate of correct predictions increased to 86.9%, with only three outliers amongst 99 participants. This prediction rate could be increased to 89.9% in a forward regression, with only two outliers, by adding the following factors: debt exceeding \$30,000, the number of leisure activities significantly associated with non-CMAs (i.e., baseball, fishing skiing/snowboarding, and ultimate), being male, and being in a committed relationship. The addition of several other variables, including parental location, a strong sense of duty to parents, and strong feelings about the importance of salary in the job location decision, modestly increased the prediction rate to 91.0%, but also increased the number of incorrect predictions to four, so was not deemed worthwhile. The regression coefficients, Wald statistics, and odds ratios for the six variables ultimately used in the analysis are shown in Table 17.

Table 17. Statistical values from logistic regression for predictors of job location

Variable	β	Wald Test	p	Odds Ratio
Location type at admission (1=CA or RST)	2.742	8.968	0.003	15.525
# of rural practicum locations	1.086	8.305	0.004	2.964
Debt over \$30,000	1.468	3.327	0.068	4.342
Sex (1=male)	2.015	4.806	0.028	7.502
Marital status (1=committed relationship)	0.691	0.789	0.374	1.995
# of non-CMA leisure activities	1.345	9.161	0.002	3.839

The β -values in Table 16 are the regression coefficients that would be used in an equation to predict the probability of the outcome, expressed in the manner of Field (2005, p. 220) as follows:

$$P(Y) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_1 + \beta_2 X_2 \dots \beta_n X_n)}}$$

The β -values reported are all positive, meaning that the six variables included in the analysis are all positively associated with the probability of taking a job in a CA or RST (Pallant, 2005, p. 168). The Wald test is used to assess the contribution of each of the variables to the prediction, the p -values for which indicate the significance of the contribution (Pallant, 2005, p. 168). As Table 16 shows, debt level and marital status did not contribute significantly to the prediction. Finally, the odds ratios represent the increase (or decrease for values less than one) in the odds of the dependent variable occurring for each unit of increase in the associated independent variable (Tabachnick & Fidell, 2001, p. 548). For example, participants living in a CA or RST at the time of admission were 15.525 times more likely to be taking a job in a CA or RST than those living in a CMA at the time of admission.

Summary

The survey employed for this study was useful in obtaining much information about where the graduates of the Pharmacy Class of 2007 were taking jobs and the factors that influenced their decision-making process. The efforts to validate the questionnaire and the high response rate should give some confidence in the results obtained.

The questionnaire asked participants to rate the degree to which a variety of factors influenced their choice of job location. These factors were arranged in six themes, namely attributes of the community and the workplace; proximity to significant others; family dynamics and long-term relationship and career plans; practicum locations; leisure preferences; and financial factors. In all, 43 different factors were rated. Only 10 factors received mean ratings in the moderate to strong influence range. In order starting from the strongest influence, these were proximity to one's children (for those who had children), proximity to one's spouse/partner (for those in committed relationships), proximity to one's

boy/girlfriend (for those involved in a relationship), having an enjoyable job, suitable pace of life, long-term relationship plans, current residence in the community, proximity to one's parents, long-term career plans, and previous residence in the community. Of note is that half of these factors are associated with family or intimate relationships, emphasizing the importance of social ties in making an important life decision such as selecting the place where one will live and work after graduating from university.

There were also some factors that had very little influence on the job location decision, which received mean ratings in the no to weak influence range. These included the presence of family conflict, parental expectations of duty, and a desire to live at a distance from parents, siblings, or ex-spouses. Access to religious activities was unimportant in general, as the majority of participants did not partake in these types of activities. Even amongst those who did attend religious services or participate in Bible study or fellowship activities, availability to these was not an important factor in their job location decision. Also, most did not feel that where they did their practicums had much influence on their job location. However, the number of practicums completed in CAs and RSTs was a positive predictor of taking a job in a CA or RST. This finding is likely related to the fact that the participants had some say in where they did their practicums, so may have made those choices in a manner similar to their job location decisions.

Of particular interest in this study was the difference, if any, in the influences on those taking jobs in RSTs or CAs rather than CMAs. A few such differences were identified. Those taking jobs in RSTs were more influenced than the others by the ability to practice pharmacy in the manner they desired and by the pace of work they anticipated. Those taking jobs in CAs were more influenced by access to sports and outdoors activities and by financial

factors, including the salary and the monetary benefits, such as signing bonuses, they expected and the debt they had acquired. Those taking jobs in CMAs were more influenced by access to cultural, entertainment, and social activities.

A few differences based on sex, age, marital status, and ethnicity were also identified. Males were more influenced by financial factors, including salary, monetary benefits, and cost of living, than females. Younger participants were more influenced by proximity to their parents and siblings, while older participants were more influenced by their plans for starting their own families. Those in committed relationships were also more influenced by proximity to their spouses, plans for children, and their spouse's career plans. Those who indicated they were of Chinese or East Indian ethnicity were more influenced by proximity to their parents and parental expectations and personal feelings of family duty.

Overall, participants were more likely to be taking jobs in CAs or RSTs if they were living in a CA or RST at the time of admission, completed one or more practicums in a rural location, had debt over \$30,000, were male, were in committed relationships, and enjoyed leisure activities that were more strongly associated with CAs or RSTs than CMAs.

CHAPTER V: DISCUSSION AND CONCLUSIONS

Introduction

The purpose of this study was to obtain a clear understanding of where graduates of the UBC Faculty of Pharmaceutical Sciences intend to take their first jobs and the extent to which a variety of factors influence their selection of a job location. The migration patterns of pharmacy graduates planning to take jobs in communities outside the Metro Vancouver area in general, to rural and remote communities in particular, and to Washington State were of special interest.

Obtaining information on where pharmacy students go when they graduate is a useful but straightforward exercise. Understanding why they go where they do, and being able to predict where someone might go, is a much more complex matter. The literature about the location choices made by health professionals provides minimal guidance, as it is fairly sparse, is focused almost exclusively on the location choices of physicians, and is not specific to British Columbia. Nevertheless, it is a starting place, and was helpful in identifying themes for the questionnaire that was used to collect data for this study.

Discussion of Findings

The majority of graduates do, in fact, take jobs in the Metro Vancouver area, in numbers somewhat disproportionate to the general population. Specifically, 60 (60.6%) of the study participants were intending to take jobs in Metro Vancouver, while only 51.5% of the population of BC lives in this area (BC STATS, 2006b). A total of nine participants were leaving the province, two because of return-of-service commitments on scholarships they had received and one who had come from Ontario to attend UBC and was returning. Only four (4%) were leaving Canada to take jobs in Washington State, a figure which is much more in

line with the findings of Andres and Licker (2005) about the migration of BC university graduates than with the estimates of the Canadian Pharmacists Association (Human Resources Development Canada, 2001) or the BC Pharmacy Association (2002). This left only 30 participants (30.3%) to serve the needs of the rest of the province, where 48.5% of the population resides in large and small communities, including 3 of the province's 4 Census Metropolitan Areas (CMAs), all 20 Census Agglomerations (CAs), and many Rural and Small Towns (RSTs).

Overall, the participants were very happy with their job locations. This may be a reflection of the amount of choice available to them, given the current shortage of pharmacists. How they made that choice varied, but one hypothesis supported by the literature and currently used in Faculty admissions decisions is that the home town location is an important factor. This study confirms that this is certainly the case for those who grew up in Metro Vancouver. These graduates were very unlikely to be taking jobs outside this area. Furthermore, a portion of those who grew up elsewhere in the province, who came to Vancouver to attend university, were planning to stay in Metro Vancouver after graduating. This pattern of migration will be contributing to the maldistribution of pharmacists in BC, exacerbating the shortage of pharmacists in CAs and RSTs. Among those who grew up elsewhere and who did plan to take jobs outside Metro Vancouver, about half (47.4%) were returning to their home towns, and most (79.0%) were staying in the same area of the province.

This study also showed that location on admission was a better predictor overall of job location than home town location; however, this finding was mainly due to migration into Metro Vancouver and was not actually true for those taking jobs elsewhere in the province.

The majority of those taking jobs in District 3 (Vancouver Island), District 4 (Kootenay/Okanagan), and District 5 (Northern BC) did grow up in those areas. Home town location was a better predictor than location on admission for this group. Thus, it is probably fortunate that the mailing addresses provided by applicants to the pharmacy program at UBC seem to be more reflective of where they grew up than where they happened to be living at the time, which in some cases would have been a temporary location while attending college or university to complete the pre-pharmacy requirements.

It was further hypothesized that the degree to which the home town location would influence job location might be modified by the family situation at the time of graduation. One thought here was that, in the absence of family conflict, students whose families moved to another community during the university years would be inclined to take jobs in the new location in order to have easy access to the social capital inherent in their family ties. It is difficult to assess the extent to which this occurred, as insufficient data were collected on the questionnaire regarding the movement of family members. However, this effect was observed amongst the interviewees. In the two instances where families had moved, the participants had taken jobs in the new location.

Other thoughts were that attitudes regarding duty to one's parents might increase the likelihood of taking a job in the family location, and attitudes regarding independence from one's parents or the presence of conflict in the family might decrease this likelihood. These influences appear to be modest at best. From the responses on the questionnaires, it seems that the majority of parents have neither high expectations of familial duty nor are they pushing their children to strike out on their own. Further, there were very few reports of any type of family conflict. It does appear, however, that participants were in the process of

forming their own families so closeness to romantic partners and plans for having or caring for their own children were of greater importance than closeness to parents and siblings in their job location decisions.

Additionally, it was hypothesized that the types of leisure activities that individuals enjoyed would be associated with the type of community in which they grew up, and would, in turn, have a weak influence on their job location. The associations here are, in fact, quite weak. Differences in leisure preferences based on whether the home town location was a CMA, CA, or RST were virtually nonexistent. Most participants enjoyed a range of sports, outdoors, cultural, and entertainment activities, and relatively few were engaged in either religious or volunteer activities. There were also few differences in leisure preferences associated with the type of job location. Furthermore, the differences found may be erroneous due to the small numbers available for analysis. However, those participants who especially enjoyed wilderness activities were more likely to take a job in a CA or RST rather than a CMA, while those who especially enjoyed the amenities of a larger city were more likely to take a job in a CMA rather than a CA or RST.

The hypothesis that exposure to pharmacy practice in smaller communities through the practicum courses would be weakly associated with taking a job in a similar type of location is not well supported by the study findings. There was an association between the number of practicums completed in CAs or RSTs and the likelihood of taking a job in a CA or RST; however, it is difficult to say that the practicums were actually influencing the job location. Participants had some choice in their practicum locations, so those already intending to take a job in a particular community or area of the province would likely have been able to complete at least some of their practicums there. Also, even though virtually all

had to leave Metro Vancouver for one or more practicums, those who grew up in Metro Vancouver were not induced to take jobs elsewhere.

Financial factors, such as the salary and benefits offered by employers and the amount of debt acquired by graduation, were hypothesized to be yet another weak influence on job location. These factors were all rated on average as being weak to moderate influences. Salaries and other monetary benefits are clearly more generous in smaller communities, but these financial incentives again do not entice those who grew up in Metro Vancouver to take jobs elsewhere. However, they may stem the flow of migration into Metro Vancouver of those who grew up outside this area.

Lastly, the demographic variables of age, sex, marital status, and ethnicity were thought to have no direct influence on job location, but to possibly be associated with any or all of home town location, family situation, leisure preferences, exposure to rural practice, and financial factors. The study findings do support this hypothesis. Where there was an association between a demographic variable and a particular factor affecting the job location, there was frequently a plausible alternate explanation. For example, patterns of distribution of ethnic groups in job locations are similar to the patterns of distribution of home towns for these groups. Thus, it is quite possible that it is not ethnicity per se but rather the home town location that is influencing the job location.

Implications for Policy and Practice

Bold suggestions aimed at addressing the pharmacist shortage in rural BC would not be appropriate on the basis of this study, given that the shortage may be in part driven by business objectives rather than pharmacist workload or patient need; that the small number of study participants taking jobs in RSTs is an important source of error; and that many of the

findings are of modest practical value. Thus, the recommendations for policy and practice that follow are conservative, and are based primarily on the findings regarding patterns of migration from home town to job location and the factors most strongly influencing the job location decision.

The Faculty's current policy of selectively admitting applicants from Districts 3, 4, and 5 for the 12 externally funded seats intended to address the pharmacist shortage around the province seems reasonable. However, even with these 12 extra students, there is still an imbalance in the geographic distribution in the class. In total, 37.6% of participants were from these districts, yet close to half of the population resides in these areas of the province. Not only that, but with a significant minority of students from these areas staying in Metro Vancouver to take jobs after graduating, the shortage of pharmacists in other parts of the province is being exacerbated.

Two strategies come to mind to address this imbalance. First, in line with some of the suggestions of Rourke (2005) for addressing the shortage of rural physicians, targets could be set for admissions that better reflect the distribution of the population. This is not to suggest that admission standards should be compromised for the sake of admitting more students from rural areas. Rather, applicants who meet all admission criteria could be selected in proportion to the population of the pharmacy district in which their home town is located. This should result in some additional supply of pharmacists for Districts 3, 4, and 5. However, this will only be possible to implement if there are sufficient qualified applicants from around the province. Thus, a second strategy of actively recruiting applicants from outside Metro Vancouver would be advisable. Current recruitment efforts of the Faculty are very modest, consisting mainly of participation in occasional events on campus aimed at first

year Science students and attending career events at local high schools when invited. For recruitment outside Metro Vancouver, other than through the pre-pharmacy program recently established at UBC Okanagan, the Faculty relies on the efforts of UBC's Student Recruitment and Advising personnel to spread the word about the program. More aggressive recruitment by the Faculty has not been a priority for a number of reasons, including lack of resources and the fact that there have been plenty of qualified applicants as is.

For the proposed recruitment efforts to be successful, the Faculty must bear in mind how differences in social capital between urban and rural youth might be contributing to lack of participation in university programs by rural youth. Specifically, rural youth tend to have strong social networks that they may not wish to be living away from to attend university. The norms in these social networks may also result in limited educational aspirations and achievements. Findings regarding the strong influence of proximity to significant others in the job location decision underscore the importance of paying attention to these and similar social capital issues.

One strategy that might be effective in recruiting rural youth would be to involve trusted teachers and school counsellors, local pharmacists, and other members of the community in recruitment efforts. It has been demonstrated that social ties with these types of institutional and community agents, although weaker than family ties, are linked to educational success for working-class and minority youth (Stanton-Salazar & Dornbusch, 1995), and this may well also apply to rural youth. Teachers and school counsellors are well placed to encourage good academic preparation for university programs in general, with pharmacy being just one of many options that might be considered. Local pharmacists would be in a position to more specifically encourage consideration of the pharmacy program, and

might be able to provide opportunities for job shadowing or part time work and mentorship to interested youth. To effectively assist in the recruitment process, these local agents would need to be supported by the Faculty, which might provide assistance with establishing relationships between personnel in the schools and pharmacies and with resources such as accurate information on academic prerequisites to the pharmacy program, application procedures, and projections for job opportunities for pharmacists.

Admission to the Faculty is a competitive process, and applicants must have not only successfully completed high school but also one year of Science at the college or university level. Thus, at least some recruitment activities need to be targeted at rural high school students to encourage rates of high school completion and aspirations for higher education more on a par with their urban counterparts. Additionally, recruitment efforts aimed at students in regional colleges and other universities would be worth considering in attempts to redress existing geographic imbalances. For example, the Greater Victoria area is the second largest CMA in the province, with 8.4% of the population (BC Stats, 2006b). Yet only 3.9% of the study participants were from Victoria. Youth living in Victoria and attending the University of Victoria have access to many programs there, so may not be aware of or motivated to pursue programs like pharmacy that are only available at UBC.

Furthermore, if these recruitment efforts prove to be successful and more students from outside Metro Vancouver are admitted, the Faculty might consider strategies for ensuring appropriate supports are in place. For example, these students may have more financial challenges, given the costs of living away from home. While some scholarships and bursaries already exist to assist students, more could be done. The Faculty might consider, for instance, targeting a proportion of the Dean of Pharmaceutical Sciences Scholarships to

students from Districts 3, 4, and 5 and raising additional funds to make these awards larger. Alternatively, new awards could be established following the model of the Mabel Chan Memorial Scholarship, for which “first preference is given to students from the East Kootenay region” (UBC Student Services, 2008).

Students from rural communities may also be in greater need of social support. The Faculty is already considered a welcoming place, but more could be done to help students form new or expand their existing social networks. It might be useful, for example, to reestablish the faculty-student mentoring program or to develop a mechanism to ensure that every student can be part of a study group. Regardless of the particular path chosen, the Faculty’s role might include assistance in creating groups, providing meeting space, and perhaps locating and training peer or faculty advisors. Groups would have to be formed with care, to avoid the “creation of perverse social capital” (Field, 2003, p. 121), with such risks as unhealthy group norms in regard to attitudes towards the opposite sex or those of different ethnic backgrounds, poor study habits, use of drugs and alcohol, and other undesirable behaviours that can occur among university students. One thought is to form groups in which there are both similarities and differences among the members in terms of attributes the Faculty has awareness of, such as ethnicity, sex, and home town location. If the groups function as intended, they could be a source of academic support, cultural exchange, social inclusion, enhanced participation in university life, and personal support in times of stress. These types of “profits” gained from participation in the proposed groups “are the basis of the solidarity which makes them possible” (Bourdieu, 1983/1986, p. 249). The social ties that are formed might also persist after graduation and be a source of information on employment opportunities and professional support when the participants are scattered and more isolated.

To the extent that it is within the Faculty's control, the Faculty should be ensuring that the student body is representative of the provincial population. Thus, the Faculty might also consider making a commitment to addressing other imbalances in the pharmacy student body, in particular the underrepresentation of aboriginal students and of males. As with students from rural locations, these students are underrepresented in the applicant pool. For example, the Faculty currently admits all aboriginal applicants who meet minimum eligibility requirements, and yet there were no aboriginal participants in the study. Targeted recruitment efforts, including involvement of trusted individuals in schools and communities, and the development of appropriate Faculty supports similar to those proposed for rural students would be worth considering here.

Periodic reviews of recruitment efforts and admission criteria should be undertaken to ensure that these are resulting in appropriate diversity within the student body. It is certainly not the purpose of the Faculty to have policies in place that perpetuate inequalities based on ethnicity, sex, socioeconomic status, or other characteristics not relevant to the ability to practice pharmacy competently and to meet the health care needs of the population of BC. That is, to the extent that is within the Faculty's control, the outcome of recruitment and admission policies and practices should be avoidance of reproduction of social inequity.

The Faculty's current practices regarding assignment of practicum sites all around the province are appropriate, although they should not give anyone false hope that students from Metro Vancouver who are required to travel elsewhere to complete their practicums might end up taking jobs in those locations. Nevertheless, the findings of this study suggest that familiarity with the community is a strong influence on job location, and practicum experiences will be contributing to this familiarity. There should be sufficient high quality

sites in all areas of the province to allow those who are interested in taking jobs in a particular area to have the opportunity to gain practice experience where they ultimately intend to work. One issue that should be addressed is the lack of sites in Northern BC. The shortage of practicum sites here is related to the shortage of pharmacists (A. Kim-Sing, personal communication, January 15, 2008), but it does seem counterproductive for pharmacies to refuse to take students for practicums in this situation. Thus, the Faculty will need to maintain its current efforts to recruit and support preceptors from outside Metro Vancouver, and in Northern BC in particular.

The responsibility for addressing the shortage of pharmacists around the province does not lie solely, or even mainly, with the Faculty. Employers in both community and hospital settings must consider what they could do to contribute to solving this problem. For example, Shoppers Drug Mart has gone the route of providing generous scholarships in exchange for return-of-service commitments. This program does appear to be partially effective, as some scholarship recipients were taking jobs in locations that they would probably not otherwise have considered. Even those who ended up back in their home towns might have otherwise joined the flow of migration into Metro Vancouver. Other strategies aimed at the supply side of the equation might include assisting in the recruitment of students by mentoring local youth and providing part-time or summer employment, and by accepting students for the practicum courses. Where patient care would not be compromised, employers might also consider reducing hours of operation to reduce the demand for pharmacists. While pharmacies provide essential health services, sometimes in emergencies that can occur at any time, it hardly seems necessary for many pharmacies to be open late into the evening or 24 hours a day.

Finally, given findings on the importance of having an enjoyable job and long-term career plans, the Faculty might consider adding its voice to those calling for expansion in the scope of pharmacy practice, as envisioned in the Blueprint for Pharmacy (Canadian Pharmacists Association, 2008a). The abilities of many pharmacists are underutilized, particularly in the community practice environment where the pharmacist's role is often limited to dispensing and administrative duties, which may well lead to dissatisfaction with the job.

One of the barriers to enhancement of the pharmacist's role is the current compensation model, so the Faculty might also become involved in advocating for adequate payment for pharmacists' services. Health care is seen as a public good, so many health services are funded publicly in BC. However, prescription drug costs (outside the hospital environment) are only partially covered. Individuals must bear fairly substantial deductible and co-payment costs. Furthermore, pharmacists are mainly compensated for the technical task of dispensing prescriptions and not for professional services such as disease state management. Even at that, pharmacists are underpaid. It has been estimated that the cost of simple dispensing is \$9.63 per prescription while inclusion of the cost of "enhanced" (but actually essential) services, such as reviewing medication records and counselling on correct use of medications, increases the total to \$13.60 per prescription; yet the maximum public payment through PharmaCare is \$8.60 per prescription (BC Pharmacy Association, 2008). Thus, there is much work to be done to move pharmacy practice beyond its current focus on dispensing medications to the provision of services that are more arguably in the public good and to ensure that such services are properly funded.

Further Research

This study set out to determine what characteristics distinguish those who take jobs in rural areas from those who take jobs in larger communities. However, the findings in this regard are limited, due at least in part to the small number of participants taking jobs in RSTs and subsequent lack of power in the statistical analyses. Thus, it might be useful to increase the sample size by administering the questionnaire to another recent graduating class, provided the job market is comparable for the two classes. For example, the study could be extended to the University of British Columbia Class of 2008, to increase the number of participants within BC, or to the University of Alberta Class of 2007, to increase the number of participants within the same graduating year. Also, in retrospect, a better question might have been what distinguishes those who take jobs outside Metro Vancouver from those who do not leave this area upon graduation. It would be worth conducting further research to explore this issue, perhaps by focusing only on those who come from and/or take jobs in Districts 3, 4, and 5.

A follow up study to determine the extent to which pharmacists stay in the locations where they took their first jobs might also be useful. For instance, it would be interesting to look at retention of pharmacists in the locations they went to because of return-of-service commitments and at the ultimate job locations of those whose “first job” according to this study was a one-year residency program, which is only available in a limited number of locations.

A greater understanding of when the job location decision is actually made might also be of value to the Faculty and to prospective employers in developing strategies to encourage students to consider taking jobs outside Metro Vancouver. For example, some participants in

this study obviously had a location in mind from the time they entered the pharmacy program and the majority of the participants had made a decision at the time they completed the questionnaire, which was some months before they would actually be licensed and available to work. If the location decision is made long in advance of graduating, then perhaps practicum locations could be assigned more strategically.

Limitations

This study does have some limitations related to methodology. It is possible that the students in the one graduating class completing the questionnaire were atypical or that the job market they were entering was unusual in terms of where jobs were available. Also, although the participation rate was high, it is possible that there were important differences between those who participated and those who did not. For example, subsequent personal conversations with some members of the class revealed that at least two graduates were taking jobs in rural locations that were not mentioned on the questionnaires. Thus, these individuals either did not participate or had not made a decision when they completed the questionnaire (or had subsequently changed their mind) about their job location. These two additional people represent a 33% increase in the number of those taking jobs in rural locations identified in the study.

Also, this study provided an overview of the job location decisions of a whole class, only a very few of whom were taking jobs in rural areas. With such small numbers in this group, it is difficult to make accurate generalizations about their characteristics or the factors influencing their job location decisions, and how these might be different from their classmates who took jobs in larger communities. For example, the small cell size in the χ^2 tests evaluating the association between various leisure activities and location type has

resulted in an increased risk of Type I error in these analyses. There is also a risk of Type II error throughout this study due to lack of power, as evidenced by analyses with large effect size but no statistical significance. Furthermore, the questionnaire used was quite broad in scope, so of necessity lacking in the probing details that might provide very useful insights into the decision-making processes involved in selecting a first job after graduating. Also, even though the questionnaire was quite detailed, no data were collected on the specific employers graduates were taking jobs with, the work conditions they were expecting, the terms of their contracts, etc. Given the degree of influence of having enjoyable jobs and being able to practice pharmacy in the manner desired, these details might have been very informative. As a consequence of these limitations, the results of this study have been interpreted with some caution, and have been applied conservatively in the formulation of the recommendations for policy and practice.

Conclusions

The purpose of this study was to determine where UBC pharmacy graduates intend to take their first jobs and the factors that affect their decision-making about their job locations. Some useful information has been obtained in this regard, including confirmation that graduates take jobs in the Metro Vancouver area in numbers disproportionate to the population and refutation of the view that large numbers of UBC graduates take jobs in Washington State. Findings about the association between home town and job location and the factors that are strong influences in the job location decision, such as proximity to significant others, may be of use to the Faculty and to employers in developing strategies to increase the number of graduates taking jobs in areas of the province outside Metro Vancouver. However, findings about the differences in the strength of influence associated

with job location type for these factors are of limited usefulness, given the relatively small number of factors for which statistically significant differences were found and the minimal practical significance of some of these.

As with any study, there are methodological limitations here, particularly in relation to the small number of participants taking jobs in rural locations. Ultimately, it is hoped, however, that this study can contribute to solutions to the maldistribution of pharmacists, particularly the shortage of pharmacists in smaller communities all over the province.

APPENDIX I

Table 18. List of all locations given by participants

	Location	Type	Pharmacy District
1	Vancouver	CMA	1
2	Richmond	CMA	1
3	Burnaby	CMA	1
4	New Westminster	CMA	1
5	White Rock	CMA	2
6	Surrey	CMA	2
7	Delta	CMA	2
8	Ladner	CMA	2
9	Tsawwassen	CMA	2
10	Cloverdale	CMA	2
11	Coquitlam	CMA	2
12	Port Coquitlam	CMA	2
13	Port Moody	CMA	2
14	Maple Ridge	CMA	2
15	Pitt Meadows	CMA	2
16	Langley	CMA	2
17	Fort Langley	CMA	2
18	Aldergrove	CMA	2
19	Abbotsford	CMA	2
20	Mission	CMA	2
21	Chilliwack	CA	2
22	Deroche	RST	2
23	Hope	RST	2
24	North Vancouver	CMA	1
25	West Vancouver	CMA	1
26	Squamish	CA	1
27	Whistler	RST	1
28	Gibsons	RST	3
29	Sechelt	RST	3

	Location	Type	Pharmacy District
30	Powell River	RST	3
31	Victoria	CMA	3
32	Sidney	CMA	3
33	Mill Bay	RST	3
34	Lake Cowichan	RST	3
35	Duncan	CA	3
36	Ladysmith	RST	3
37	Salt Spring Island	RST	3
38	Nanaimo	CA	3
39	Lantzville	RST	3
40	Parksville	CA	3
41	Qualicum Beach	RST	3
42	Port Alberni	CA	3
43	Gold River	RST	3
44	Courtenay	CA	3
45	Comox	RST	3
46	Port McNeill	RST	3
47	Sointula	RST	3
48	Prince Rupert	CA	3
49	Bella Coola	RST	3
50	Kamloops	CA	4
51	Merritt	RST	4
52	Douglas Lake	RST	4
53	Clearwater	RST	4
54	Kelowna	CMA	4
55	Westbank	CMA	4
56	Summerland	RST	4
57	Penticton	CA	4
58	Oliver	RST	4
59	Osoyoos	RST	4

	Location	Type	Pharmacy District
60	Vernon	CA	4
61	Salmon Arm	CA	4
62	Enderby	RST	4
63	Midway	RST	4
64	Nelson	RST	4
65	Trail	RST	4
66	Revelstoke	RST	4
67	Kimberley	RST	4
68	Cranbrook	CA	4
69	Fernie	RST	4
70	Castlegar	RST	4
71	Creston	RST	4
72	Salmo	RST	4
73	Golden	RST	4
74	Grand Forks	RST	4
75	100 Mile House	RST	4
76	Williams Lake	CA	5
77	Quesnel	CA	5
78	Prince George	CA	5
79	Burns Lake	RST	5
80	Smithers	RST	5
81	Houston	RST	5
82	Terrace	CA	5
83	Vanderhoof	RST	5
84	Fort St. James	RST	5
85	Fort St. John	CA	5
86	Taylor	RST	5
87	Cecil Lake	RST	5
88	Calgary, AB	CMA	5
89	Edmonton, AB	CMA	OOP

	Location	Type	Pharmacy District
90	Grande Prairie, AB	CA	OOP
91	Lethbridge, AB	CA	OOP
92	Red Deer, AB	CA	OOP
93	Winnipeg, MB	CMA	OOP
94	Elmira, ON	RST	OOP
95	Guelph, ON	CA	OOP
96	Hamilton, ON	CMA	OOP
97	Kenora, ON	CA	OOP
98	Kingston, ON	CMA	OOP
99	London, ON	CMA	OOP
100	Oshawa, ON	CMA	OOP
101	Ottawa, ON	CMA	OOP
102	Sault Ste. Marie, ON	CA	OOP
103	Thunder Bay, ON	CMA	OOP
104	Toronto, ON	CMA	OOP
105	Brampton, ON	CMA	OOP
106	Mississauga, ON	CMA	OOP
107	Richmond Hill, ON	CMA	OOP
108	Montreal, PQ	CMA	OOP
109	St. Laurent, PQ	CMA	OOP
110	Fredricton, NB	CA	OOP
111	Halifax, NS	CMA	OOP
112	Kennewick, WA	CA	OOP
113	Seattle, WA	CMA	OOP
114	Tacoma, WA	CMA	OOP
115	Sammamish, WA	CMA	OOP
116	Pasadena, CA	CMA	OOP
117	San Francisco, CA	CMA	OOP
118	Boston, MA	CMA	OOP
119	New York, NY	CMA	OOP

	Location	Type	Pharmacy District
120	Hong Kong, China	CMA	OOP
121	Da Lian, China	CMA	OOP
122	Tianjin, China	CMA	OOP
123	Taichung, Taiwan	CMA	OOP
124	Taipei, Taiwan	CMA	OOP
125	Singapore	CMA	OOP
126	Unspecified city, Korea	CMA?	OOP
127	Kuala Lumpur, Malaysia	CMA	OOP
128	Sydney, Australia	CMA	OOP
129	Badshot Lea, UK	RST	OOP
130	Farnham, UK	CA	OOP
131	London, UK	CMA	OOP
132	Villefranche-Sur-Mer, France	RST	OOP
133	Vienna, Austria	CMA	OOP
134	Amsterdam, Netherlands	CMA	OOP
135	Rotterdam, Netherlands	CMA	OOP
136	Kristianstad, Sweden	CA	OOP
137	Ruda Sl, Poland	CMA	OOP
138	Warsaw, Poland	CMA	OOP
139	Zabrze, Poland	CMA	OOP
140	Athens, Greece	CMA	OOP
141	Kermin Shah, Iran	CMA	OOP
142	Kuwait City, Kuwait	CMA	OOP
143	Al Ain, United Arab Emirates	CMA	OOP
144	Nairobi, Kenya	CMA	OOP
145	Lusaka, Zambia	CMA	OOP

Key: CMA = Census Metropolitan Area
CA = Census Agglomeration
RST = Rural or Small Town

District 1 = Vancouver
District 2 = Fraser Valley
District 3 = Vancouver Island
District 4 = Kootenay/Okanagan
District 5 = Northern BC
OOP = Out of Province

APPENDIX II



The University of British Columbia
Office of Research Services and Administration
Behavioural Research Ethics Board

Certificate of Approval

PRINCIPAL INVESTIGATOR Andres, L.C.		DEPARTMENT Educational Studies	NUMBER B06-0540
INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT UBC Campus ,			
CO-INVESTIGATORS: Fielding, David, Pharmaceutical Sciences; Metcalfe, Amy, Educational Studies; Pearson, Marion L., Educational Studies			
SPONSORING AGENCIES BC Medical Services Foundation			
TITLE: A Study of the Characteristics of UBC Pharmacy Students Associated with Selection of Pharmacy Positions in Rural Areas of BC upon Graduation			
APPROVAL DATE AUG 24 2006	TERM (YEARS) 1	DOCUMENTS INCLUDED IN THIS APPROVAL: Aug. 22, 2006, Contact letters / June 20, 2006, Advertisement / Consent form / Cover letter / Questionnaires	
CERTIFICATION: The application for ethical review of the above-named project has been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.  <hr/> <i>Approved on behalf of the Behavioural Research Ethics Board</i> <i>by one of the following:</i> Dr. Peter Suedfeld, Chair, Dr. Jim Rupert, Associate Chair Dr. Arminee Kazanjian, Associate Chair Dr. M. Judith Lynam, Associate Chair This Certificate of Approval is valid for the above term provided there is no change in the experimental procedures			

THE UNIVERSITY OF BRITISH COLUMBIA



Department of Educational Studies
Mailing address:
2125 Main Mall
Vancouver, B.C. Canada V6T 1Z4

October 25, 2006

Tel: 604-822-5374
Fax: 604-822-4244
<http://www.edst.educ.ubc.ca>

To the Class of 2006:

I am writing to invite you to participate in an interview to discuss your reasons for choosing your first job after graduation. These interviews are part of a research project, entitled "Characteristics of UBC Pharmacy Students Associated with Rural Job Selection," that I am undertaking to fulfill the thesis requirements of my Masters degree in Education, under the supervision of Dr. Lesley Andres and Dr. Amy Metcalfe in the Department of Educational Studies and Dr. David Fielding in the Faculty of Pharmaceutical Sciences. An application has been made to the BC Medical Services Foundation to fund this work, and the Faculty of Pharmaceutical Sciences may use the results to determine reasonable ways to respond to the pharmacist shortage that exists in many communities.

I am seeking volunteers from your class who are currently working as pharmacists in BC and who:

1. Spent the majority of their elementary and high school years in a rural area or small town and are now working in a similar small community in BC
2. Spent the majority of their elementary and high school years in a rural area or small town and are now working in a large town or urban area in BC
3. Spent the majority of their elementary and high school years in a large town or urban area and are now working in a similar large community in BC
4. Spent the majority of their elementary and high school years in a large town or urban area and are now working in a rural area or small town in BC

The interviews will be done in December 2006, and will include questions about your personal characteristics, the location(s) of and your relationships with family members, your financial situation, your leisure activities, your clerkship experiences, the nature of your first pharmacy job after graduation, and the factors affecting your choice of that job. The interviews will take about an hour and will be audio recorded. You will also be asked to pilot test a written survey that will be given to the Class of 2007, which will take about half an hour.

Participation is voluntary and you may withdraw at any time. If you participate your identity will be kept confidential and your responses will in no way affect either your standing at UBC or your job. You will receive a \$25 honorarium for participating and a summary of results will be sent to you. If there is a need to view your UBC record for this project, the Dean's Office (not I) will access your record.

If you are interested in participating and/or have any questions, please contact me by e-mail at marionp@interchange.ubc.ca or by phone at 604-822-4933.

Sincerely,
Marion L. Pearson, B.Sc.(Pharm.)

THE UNIVERSITY OF BRITISH COLUMBIA



Department of Educational Studies

Mailing address:

2125 Main Mall

Vancouver, B.C. Canada V6T 1Z4

Tel: 604-822-5374

Fax: 604-822-4244

<http://www.edst.educ.ubc.ca>

Consent Form

for the study

“Characteristics of UBC Pharmacy Students Associated with Rural Job Selection”

Principal Investigator: Dr. Lesley Andres, Associate Professor, Department of Educational Studies, 604-822-8943

Co-Investigators: Ms. Marion Pearson, MA candidate, Department of Educational Studies, 604-822-4933

Dr. Amy Scott Metcalfe, Assistant Professor, Department of Educational Studies, 604-822-5331

Dr. David Fielding, Professor, Faculty of Pharmaceutical Sciences, 604-822-5447

This study is being conducted by Ms. Marion Pearson for her MA degree in Higher Education, with funding provided by the BC Medical Services Foundation. The results will be published in the form of a thesis and may be presented in other publications and at conferences. The Faculty of Pharmaceutical Sciences may use the results to determine reasonable ways to respond to the pharmacist shortage that exists in many communities.

You are being asked to participate in this study because you previously expressed an interest in doing so.

Purpose: The purpose of this study is to determine the factors that influence the geographic location where new UBC pharmacy graduates choose to live and work.

Study Procedures: The study involves interviewing 20 members of your class who are working as pharmacists in large and small communities throughout BC. The results of the interviews will be used to develop a survey that will be administered to the Class of 2007. The interviews will be done in the fall of 2006, at a time and place of your choosing. You will be asked questions about your personal characteristics, the location(s) of and your relationships with family members,

your financial situation, your leisure activities, your clerkship experiences, the nature of your first pharmacy job after graduation, and the factors affecting your choice of that job and its location. The interview will take about an hour and will be audio recorded. You will also be asked to pilot test a draft of the survey, which will take about half an hour. Your total time commitment will be about an hour and a half.

Confidentiality: Your identity will be kept strictly confidential. Interview tapes and transcripts will be identified with a code number rather than your name and will be stored in a locked filing cabinet to which only the investigators will have access. You will not be identified by name in any reports of the completed study.

Remuneration: You will receive a \$25 honorarium for participating and a summary of the results will be sent to you.

Contact Information: The main contact person for this study is Ms. Marion Pearson, who can be reached by e-mail at marionp@interchange.ubc.ca or by telephone at 604-822-4933 if you have any questions. If you have any concerns about your treatment or rights as a research subject, you can telephone the Research Subject Information Line in the UBC Office of Research Services at 604-822-8598.

Consent: Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time without jeopardy to either your standing at UBC or your job.

Your signature below indicates that you have received a copy of this consent form for your own records.

Your signature indicates that you consent to participate in this study.

Subject Signature

Date

Printed Name of Subject

Interview Outline

“Characteristics of UBC Pharmacy Students Associated with Rural Job Selection”

1. Describe your current pharmacy job (e.g., community or hospital, number of staff, number of prescriptions filled daily, work responsibilities).
2. What attracted you to this particular job? Did you consider other job offers?
3. Where did you grow up (i.e., where did you live through your elementary and high school years)?
4. What attracted you to the city/town where you are currently living?
5. Where do your family members (i.e., mother, father, siblings, spouse or romantic partner, ex-spouse, children) currently live?
6. How do you get along with your family members? Are they supportive of the job you've chosen and the place you've chosen to live?
7. How did the location(s) of your family members and your relationships with your family members influence your current job location?
8. What are your future career plans? What are your future family plans (e.g., marriage, children)?
9. How did these plans influence your current job location?
10. What do you like to do in your spare time? What is available to you in the community where you are currently living?
11. How did your leisure preferences influence your current job location?
12. Where did you do your clerkship courses (PHAR 469, 402, and 403)? What were the positive and negative aspects of these courses?
13. How did your clerkship experiences influence your current job location?
14. What is your current financial situation (e.g., salary, signing bonus, student loan debt, corporate scholarship terms and cost of defaulting, BC student loan forgiveness).
15. How did these financial aspects influence your current job location?
16. Demographic details (i.e., male or female, year of birth, ethnicity).
17. What factors other than those we've discussed influenced your current job location?

THE UNIVERSITY OF BRITISH COLUMBIA



Department of Educational Studies

Mailing address:
2125 Main Mall
Vancouver, B.C. Canada V6T 1Z4

March 1, 2007

Tel: 604-822-5374
Fax: 604-822-4244
<http://www.edst.educ.ubc.ca>

To the Class of 2007:

I am writing to let you know about a survey I am conducting to ask you and your classmates about your job plans for after graduation. The survey is part of a research project, entitled "Characteristics of UBC Pharmacy Students Associated with Rural Job Selection," to determine the factors that influence the geographic location where new pharmacy graduates choose to live and work.

I am undertaking this research project to fulfill the thesis requirement of my Masters degree in Education, supervised by Dr. Lesley Andres and Dr. Amy Metcalfe in the Department of Educational Studies and Dr. David Fielding in the Faculty of Pharmaceutical Sciences. The Faculty of Education, the Faculty of Pharmaceutical Sciences, and your Grad Reps have given their support for this project. Some funding for this project may be received from the Humanities and Social Sciences Small Grants Program, and the Faculty of Pharmaceutical Sciences may use the results to determine reasonable ways to respond to the pharmacist shortage that exists in many communities.

The survey will be done some time in the next few weeks, either by mail if you are out of town or in person if you will be on campus. It will take about 20 minutes to complete, and will ask you questions about your job plans, the city or town where you will be going or hope to go after graduation, and the factors that influenced your choice of that location. Participation in the survey is voluntary. There will be no consequences for choosing not to participate. If you complete the survey, it is assumed that you are giving your consent to participate. Your responses will be anonymous, and will in no way affect either your academic or your employment status. Completed surveys will be stored in a secured location and only my research supervisors and I will have access to them. If there is a need to view your UBC record for this project, the Dean's Office (not I) will access your record.

If you have any questions, feel free to contact me by e-mail at marionp@interchange.ubc.ca, by phone at 604-822-4933, or in person in CUNN 162. If you have any concerns about your treatment or rights as a research subject, you can telephone the Research Subject Information Line in the UBC Office of Research Services at 604-822-8598.

As a token of appreciation for the participation of your class in this project, a donation of \$500 will be made to your Grad Committee, to support your grad events. If you are interested in the results, a summary will be sent out to your class by e-mail when it's available.

Sincerely,

Marion L. Pearson, B.Sc.(Pharm.)

Where are you headed?



A Survey of the Pharmacy Class of 2007



Faculty of Pharmaceutical Sciences
2146 East Mall
Vancouver, BC V6T 1Z3

March 2007

To the Class of 2007:

As you approach graduation, you are probably making plans for your future. We are interested in knowing where you are going - or hope to go - for your first job, and the reasons why you might choose to work in a particular geographic location. In particular, we'd like to know what might prompt you to take a job in a rural area. An understanding of the factors associated with choice of job location would help us determine ways the Faculty might contribute to solving the pharmacist shortage in particular areas of the province.

Please take a few minutes to complete the attached survey. Your responses are anonymous and will not in any way affect your academic or employment status. Participation in the survey is voluntary. If you complete the survey, it is assumed that you are giving your consent to participate.

As a token of appreciation for your participation, a donation of \$500 is being made to your Grad Committee. A summary of the results will also be available through the Faculty's web page at www.pharmacy.ubc.ca.

Thanks for your help!

Where are you going after you graduate?

1. In what type of practice are you planning to work after graduation? (Check one)
 - Community pharmacy - single site
 - Community pharmacy - floating between 2 or more sites
 - Hospital pharmacy - single site
 - Hospital pharmacy - floating between 2 or more sites
 - A combination of community and hospital practice
 - Other type of pharmacy practice (specify) _____
 - Not applicable - I don't plan to work as a pharmacist

 2. Which of the following best describes your situation for employment after graduation? (Check one)
 - I have accepted a pharmacy job in BC
 - I have accepted a pharmacy job outside BC
 - I have an offer for a job in a pharmacy in BC that I am likely to accept
 - I have an offer for a job in a pharmacy outside BC that I am likely to accept
 - I am considering several pharmacy job offers (inside and/or outside BC)
 - I am seeking or have accepted a residency position
 - I am not seeking a pharmacy job now, but plan to within 12 months
 - I am not seeking a pharmacy job now, and do not plan to within 12 months
 - Other (specify) _____

 3. For the first year after graduation, to what extent are you expecting or hoping to be working? (Check one)
 - Working full time
 - Working part time
 - Not working

 4. Do you know where you will be living for the first year after graduation? (Check one)
 - Yes
 - No (Go to Question 7, next page) _____ →

 5. If you answered "Yes" to Question 4, indicate the location.
 - City or town (specify) _____
 - Province or State (check one) B.C. Other (specify) _____
 - Country (check one) Canada Other (specify) _____

 6. How happy are you with this location? (Check one and explain why)
 - Very happy
 - Happy
 - Neutral
 - Not happy
 - Very unhappyBecause _____
-

7. If you answered "No" to Question 4, indicate the location where you hope to live after you graduate.

City or town (specify) _____
 Province or State (check one) B.C. Other (specify) _____
 Country (check one) Canada Other (specify) _____

8. Indicate the extent to which the following factors influenced the location where you will be living or hope to live (the location you named in Question 5 or 7). (Check one for each statement)

Extent of influence on my location that	Strong Influence	Moderate Influence	Weak Influence	No Influence	Not Applicable
a. I am living there (or near there) now	<input type="checkbox"/>				
b. I have lived there (or near there) in the past	<input type="checkbox"/>				
c. I have lived in a similar community	<input type="checkbox"/>				
d. Living there will be a new experience for me	<input type="checkbox"/>				
e. The community is not too large for me	<input type="checkbox"/>				
f. The community is not too small for me	<input type="checkbox"/>				
g. I can get a job I'll enjoy there	<input type="checkbox"/>				
h. I will have good co-workers there	<input type="checkbox"/>				
i. I can practice pharmacy the way I want to there	<input type="checkbox"/>				
j. The pace of work there will suit me	<input type="checkbox"/>				
k. The pace of life there will suit me	<input type="checkbox"/>				



Where did you grow up?

9. Please indicate the locations where you have lived or are living.

	City or Town	Province or State	Country
a. When you were born	_____	_____	_____
b. At age 5	_____	_____	_____
c. At age 17	_____	_____	_____
d. On admission to Pharmacy	_____	_____	_____
e. Where you are living now	_____	_____	_____
f. That you would call "home"	_____	_____	_____

10. Did you move between cities or towns between the ages of 5 and 17? (Check one)

Yes No (Go to Question 12 on the next page)

11. If you answered "Yes" to Question 10, please indicate your age (in years) and all the locations where you lived between the ages of 5 and 17.

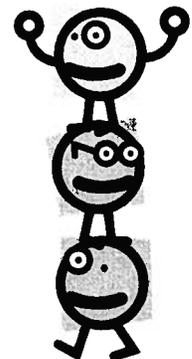


	City or Town	Province or State	Country
I lived from age <u>5</u> to ___ in	_____	_____	_____
I lived from age ___ to ___ in	_____	_____	_____
I lived from age ___ to ___ in	_____	_____	_____
I lived from age ___ to ___ in	_____	_____	_____
I lived from age ___ to ___ in	_____	_____	_____
I lived from age ___ to ___ in	_____	_____	_____
I lived from age ___ to ___ in	_____	_____	_____
I lived from age ___ to ___ in	_____	_____	_____
I lived from age ___ to ___ in	_____	_____	_____
I lived from age ___ to ___ in	_____	_____	_____
I lived from age ___ to ___ in	_____	_____	_____

Where is your family now?

12. Indicate if your immediate family members or significant others live in the same city or town where you currently live. (Check one for each)

Living in the same city/town as me	Yes (Go to Q 14)	No (Go to Q 13)	Not Applicable
a. My mother	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. My father	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. One or more siblings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. My boy/girlfriend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. My spouse/partner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. My ex-spouse/partner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. My child(ren)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



13. For those family members or significant others who do not live where you currently live (for whom you answered "No" in Question 12), please indicate where they live.

	City or Town	Province or State	Country
a. My mother lives in	_____	_____	_____
b. My father lives in	_____	_____	_____
c. One or more siblings live in	_____	_____	_____
d. Additional sibling(s) live in	_____	_____	_____
e. My boy/girlfriend lives in	_____	_____	_____
f. My spouse/partner lives in	_____	_____	_____
g. My ex-spouse/partner lives in	_____	_____	_____
h. My child(ren) live(s) in	_____	_____	_____

14. Indicate the importance of the current location of your family members or significant others in choosing the location where you will be living or hope to live after graduation (the location you named in Question 5 or 7). (Check one for each)

Extent of importance to my location that	Very Important	Somewhat Important	Not Very Important	Not at all Important	Not Applicable
a. My mother &/or father lives there or nearby	<input type="checkbox"/>				
b. My mother &/or father does not live there	<input type="checkbox"/>				
c. My sister &/or brother lives there or nearby	<input type="checkbox"/>				
d. My sister &/or brother does not live there	<input type="checkbox"/>				
e. My boy/girlfriend lives there or nearby	<input type="checkbox"/>				
f. My spouse or partner lives there or nearby	<input type="checkbox"/>				
g. My ex-spouse or partner lives there or nearby	<input type="checkbox"/>				
h. My ex-spouse or partner does not live there	<input type="checkbox"/>				
i. My child(ren) live(s) there or nearby	<input type="checkbox"/>				

15. Indicate the extent to which the following factors influenced the location where you will be living or hope to live (the location you named in Question 5 or 7). (Check one for each statement)

Extent of influence on my location related to	Strong Influence	Moderate Influence	Weak Influence	No Influence	Not Applicable
a. My parent's feelings of my duty to them	<input type="checkbox"/>				
b. My feelings of duty to my parents	<input type="checkbox"/>				
c. My parent's support for my independence	<input type="checkbox"/>				
d. My desire for independence	<input type="checkbox"/>				
e. The presence of conflict in my family	<input type="checkbox"/>				
f. My long-term romantic relationship plans	<input type="checkbox"/>				
g. My plans for having or raising children	<input type="checkbox"/>				
h. My spouse/partner's plans for children	<input type="checkbox"/>				
i. My long-term career plans	<input type="checkbox"/>				
j. My spouse/partner's long-term career plans	<input type="checkbox"/>				

Where did you do your clerkships?

16. Please indicate the locations for each of your clerkship courses.



Course	City or Town	Province
a. PHAR 369	_____	_____
b. PHAR 469	_____	_____
c. PHAR 479	_____	_____
d. PHAR 489	_____	_____

17. Indicate the extent to which your clerkship locations positively or negatively influenced the location where you will be living or hope to live (the location you named in Question 5 or 7). (Check one for each)

Extent of influence on my location of	Strong Positive Influence	Moderate Positive Influence	No Influence	Moderate Negative Influence	Strong Negative Influence
a. PHAR 369 clerkship location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. PHAR 469 clerkship location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. PHAR 479 clerkship location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. PHAR 489 clerkship location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What do you do for fun?

18. Indicate the leisure activities you enjoy (specify up to 3 of each type).

Type of activity	Activity 1	Activity 2	Activity 3
a. Solo sports (e.g., running, cycling)	_____	_____	_____
b. Team sports (e.g., hockey, volleyball)	_____	_____	_____
c. Other sports or fitness activities	_____	_____	_____
d. Outdoor activities (e.g., camping)	_____	_____	_____
e. Activities at home (e.g., TV, reading)	_____	_____	_____
f. Commercial entertainment (e.g., theatre)	_____	_____	_____
g. Social activities (e.g., going to clubs)	_____	_____	_____
h. Religious and/or spiritual activities	_____	_____	_____
i. Community or volunteer activities	_____	_____	_____
j. Other leisure activities	_____	_____	_____

19. Indicate the extent to which the availability of leisure activities influenced the location where you will be living or hope to live (the location you named in Question 5 or 7). (Check one for each)

Extent of influence on my location of availability of	Strong Influence	Moderate Influence	Weak Influence	No Influence	Not Applicable
a. Sports and/or physical activities	<input type="checkbox"/>				
b. Cultural, entertainment and/or social activities	<input type="checkbox"/>				
c. Religious and/or spiritual activities	<input type="checkbox"/>				
d. Community and/or volunteer activities	<input type="checkbox"/>				

What is your financial situation?

20. What salary are you expecting in your first job after graduation? (Check one)



- < \$50,000/yr
- \$50,000 - 60,000/yr
- \$60,000 - 70,000/yr
- \$70,000 - 80,000/yr
- \$80,000 - 90,000/yr
- > \$90,000/yr

21. What level of debt will you have when you graduate? (Check one)

- \$0
- < \$10,000
- \$10,000 - 20,000
- \$20,000 - 30,000
- \$30,000 - 40,000
- > \$40,000



22. Have you received a scholarship or other financial aid for your studies that limits the choice of cities or towns where you can work when you graduate? (Check one)

- Yes No

23. Which of the following financial benefits have you been offered or do you hope to be offered by your employer? (Check all that apply)

- Signing bonus of (specify) \$ _____
- Moving costs of (specify) \$ _____
- PEBC exam fees paid
- Licensing fees paid
- BCPhA membership paid
- ECP training paid
- Other continuing education paid
- Other (specify) _____

24. Indicate the extent to which financial factors influenced the location where you will be living or hope to live (the location you named in Question 5 or 7). (Check one for each)

Extent of influence on my location of	Strong Influence	Moderate Influence	Weak Influence	No Influence	Not Applicable
a. The salary I can earn	<input type="checkbox"/>				
b. My level of debt	<input type="checkbox"/>				
c. The terms of my scholarship or financial aid	<input type="checkbox"/>				
d. Signing bonus, fees paid, or similar benefits	<input type="checkbox"/>				
e. The cost of living in that location	<input type="checkbox"/>				

Tell us a bit about yourself!

25. In what year were you born? 19_____

26. Are you: (check one) Male Female

27. What is your marital status? (Check one)

- Single and (check one): Not romantically involved Romantically involved
- Living in a common-law relationship
- Engaged to be married
- Married
- Separated
- Divorced
- Widowed

28. What is your ethnic background*? (Check any you normally use to describe yourself)

- | | |
|----------------------------------------|------------------------------------------------|
| <input type="checkbox"/> Canadian | <input type="checkbox"/> Dutch |
| <input type="checkbox"/> French | <input type="checkbox"/> Polish |
| <input type="checkbox"/> English | <input type="checkbox"/> Portuguese |
| <input type="checkbox"/> Chinese | <input type="checkbox"/> Persian |
| <input type="checkbox"/> Italian | <input type="checkbox"/> Filipino |
| <input type="checkbox"/> German | <input type="checkbox"/> Jewish |
| <input type="checkbox"/> Scottish | <input type="checkbox"/> Greek |
| <input type="checkbox"/> Irish | <input type="checkbox"/> Jamaican |
| <input type="checkbox"/> First Nations | <input type="checkbox"/> Vietnamese |
| <input type="checkbox"/> Cree | <input type="checkbox"/> Lebanese |
| <input type="checkbox"/> Métis | <input type="checkbox"/> Somali |
| <input type="checkbox"/> East Indian | <input type="checkbox"/> Other (specify) _____ |
| <input type="checkbox"/> Ukranian | |



*Note: These categories are adapted from the 2001 Canada Census

Thank you for your time!

APPENDIX III

Table 19. Results of statistical tests

Dependent Variable	Independent Variable	Statistical Test	Result		
			Statistic	<i>p</i>	
Q6 Happiness with job location	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=0.220$	0.896	0.006
	Age	Kruskal-Wallis	$\chi^2_{(2)}=2.366$	0.306	0.02
	Sex	Mann-Whitney	$U=773.0$	0.371	0.003
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=0.068$	0.966	0.001
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=5.423$	0.491	0.08
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=13.119$	0.001	0.19
Q8a Influence on job location of living there now	Age	Kruskal-Wallis	$\chi^2_{(2)}=1.610$	0.447	0.03
	Sex	Mann-Whitney	$U=571.0$	0.771	0.002
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=0.341$	0.843	0.003
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=7.851$	0.249	0.12
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=1.909$	0.385	0.02
	Age	Kruskal-Wallis	$\chi^2_{(2)}=0.095$	0.953	<0.001
Q8b Influence on job location of living there before	Sex	Mann-Whitney	$U=508.5$	0.566	0.004
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=1.387$	0.500	0.02
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=3.252$	0.777	0.005

Dependent Variable	Independent Variable	Statistical Test	Result		
			Statistic	p	
Q8c Influence on job location of living in similar location	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=3.217$	0.200	0.06
	Age	Kruskal-Wallis	$\chi^2_{(2)}=0.213$	0.899	0.003
	Sex	Mann-Whitney	$U=342.0$	0.169	0.04
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=0.346$	0.841	0.002
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=4.637$	0.591	0.10
Q8d Influence on job location that location is new	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=2.434$	0.296	0.04
	Age	Kruskal-Wallis	$\chi^2_{(2)}=0.216$	0.897	0.004
	Sex	Mann-Whitney	$U=362.0$	0.383	0.01
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=2.242$	0.326	0.04
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=9.303$	0.157	0.15
Q8e Influence on job location that location is not too large	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=13.115$	0.001	0.16
	Age	Kruskal-Wallis	$\chi^2_{(2)}=2.119$	0.347	0.03
	Sex	Mann-Whitney	$U=660.5$	0.334	0.01
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=1.142$	0.565	0.01
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=7.220$	0.301	0.09
Q8f Influence on job location that location is not too small	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=0.084$	0.959	<0.001
	Age	Kruskal-Wallis	$\chi^2_{(2)}=0.330$	0.848	0.002
	Sex	Mann-Whitney	$U=658.0$	0.211	0.02
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=0.138$	0.933	0.001
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=5.040$	0.539	0.06

Dependent Variable	Independent Variable	Statistical Test	Result		
			Statistic	P	η^2
Q8g Influence on job location of having an enjoyable job	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=4.679$	0.096	0.05
	Age	Kruskal-Wallis	$\chi^2_{(2)}=0.591$	0.744	0.007
	Sex	Mann-Whitney	$U=791.0$	0.397	0.008
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=0.313$	0.855	0.006
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=6.269$	0.394	0.09
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=2.870$	0.238	0.04
Q8h Influence on job location of having good co-workers	Age	Kruskal-Wallis	$\chi^2_{(2)}=1.742$	0.418	0.02
	Sex	Mann-Whitney	$U=518.5$	0.093	0.03
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=1.533$	0.465	0.03
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=3.234$	0.779	0.04
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=9.610$	0.008	0.09
	Age	Kruskal-Wallis	$\chi^2_{(2)}=1.775$	0.412	0.03
Q8i Influence on job location of ability to practice as desired	Sex	Mann-Whitney	$U=791.0$	0.756	<0.001
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=1.599$	0.449	0.02
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=4.190$	0.651	0.06
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=8.342$	0.015	0.08
	Age	Kruskal-Wallis	$\chi^2_{(2)}=1.752$	0.416	0.03
	Sex	Mann-Whitney	$U=678.5$	0.435	0.006
Q8j Influence on job location of pace of work being suitable	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=1.768$	0.413	0.03
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=11.589$	0.072	0.14

Dependent Variable	Independent Variable	Statistical Test	Result		
			Statistic	p	η^2
Q8k Influence on job location of pace of life being suitable	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=1.603$	0.449	0.02
	Age	Kruskal-Wallis	$\chi^2_{(2)}=0.821$	0.663	0.008
	Sex	Mann-Whitney	$U=902.5$	0.805	<0.001
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=1.082$	0.582	0.01
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=3.857$	0.696	0.04
	Age	Kruskal-Wallis	$\chi^2_{(2)}=0.531$	0.767	0.003
Q11 – Q4 or Q7 Movement from home town to job location	Sex	Mann-Whitney	$U=843.0$	0.397	0.02
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=1.295$	0.523	0.007
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=14.809$	0.022	0.12
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=3.722$	0.156	0.04
	Age	Kruskal-Wallis	$\chi^2_{(2)}=7.503$	0.023	0.07
	Sex	Mann-Whitney	$U=940.5$	0.756	<0.001
Q14a Importance to job location that parents there/nearby	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=3.058$	0.217	0.03
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=21.138$	0.002	0.22
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=0.180$	0.914	0.004
	Age	Kruskal-Wallis	$\chi^2_{(2)}=0.633$	0.729	0.01
	Sex	Mann-Whitney	$U=467.0$	0.181	0.02
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=0.155$	0.925	0.002
Q14b Importance to job location that parents not there	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=7.128$	0.309	0.09

Dependent Variable	Independent Variable	Statistical Test	Result		
			Statistic	p	η^2
Q14c Importance to job location that siblings there/nearby	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=8.700$	0.013	0.11
	Age	Kruskal-Wallis	$\chi^2_{(2)}=8.951$	0.011	.011
	Sex	t-test	$t_{(81)}=0.003$	0.998	<0.001
	Marital status	ANOVA	$F_{(2, 80)}=1.059$	0.352	0.03
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=16.249$	0.012	0.20
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=0.927$	0.629	0.01
Q14d Importance to job location that siblings not there	Age	Kruskal-Wallis	$\chi^2_{(2)}=1.759$	0.415	0.01
	Sex	Mann-Whitney	$U=419.0$	0.760	0.009
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=8.138$	0.017	0.12
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=5.447$	0.488	0.10
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=1.436$	0.488	0.04
	Age	Kruskal-Wallis	$\chi^2_{(2)}=5.697$	0.058	0.34
Q14e Importance to job location that boy/girlfriend there	Sex	Mann-Whitney	$U=144.0$	0.878	0.004
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=1.125$	0.570	0.08
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=6.785$	0.341	0.18
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=0.916$	0.633	0.02
	Age	Kruskal-Wallis	$\chi^2_{(2)}=0.813$	0.666	0.006
	Sex	Mann-Whitney	$U=90.0$	0.500	0.06
Q14f Importance to job location that spouse/partner there	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=9.865$	0.007	0.38
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=10.579$	0.102	0.36

Dependent Variable	Independent Variable	Statistical Test	Result		
			Statistic	p	
Q14g Importance to job location that ex-spouse/partner there	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=2.500$	0.114	0.77
	Age	Kruskal-Wallis	$\chi^2_{(2)}=0.750$	0.687	0.22
	Sex	Mann-Whitney	$U=1.0$	0.197	0.38
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=1.667$	0.197	0.38
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=3.750$	0.290	0.84
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=0.420$	0.517	0.14
Q14h Importance to job location that ex-spouse not there	Age	Kruskal-Wallis	$\chi^2_{(2)}=2.000$	0.368	0.33
	Sex	Mann-Whitney	$U=4.5$	0.554	0.08
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=3.600$	0.165	0.73
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=3.150$	0.369	0.46
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=0.500$	0.779	0.06
	Age	Kruskal-Wallis	$\chi^2_{(2)}=3.500$	0.061	0.44
Q14i Importance to job location that children there/nearby	Sex	Mann-Whitney	$U=6.0$	0.593	0.04
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=3.500$	0.174	0.44
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=1.250$	0.870	0.16
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=4.831$	0.089	0.05
	Age	Kruskal-Wallis	$\chi^2_{(2)}=5.552$	0.062	0.06
	Sex	Mann-Whitney	$U=780.0$	0.131	0.02
Q15a Influence on job location that parents expect duty	Marital status	ANOVA	$F_{(2, 92)}=2.097$	0.129	0.04
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=27.349$	<0.0005	0.27

Dependent Variable	Independent Variable	Statistical Test	Result	
			Statistic	P η^2
Q15b Influence on job location of feelings of duty to parents	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=7.689$	0.021 0.08
	Age	Kruskal-Wallis	$\chi^2_{(2)}=1.160$	0.560 0.01
	Sex	Mann-Whitney	$U=865.0$	0.437 0.006
	Marital status	ANOVA	$F_{(2, 92)}=1.050$	0.354 0.02
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=19.874$	0.003 0.21
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=1.941$	0.379 0.02
Q15c Influence on job location that parents support independence	Age	ANOVA	$F_{(2, 90)}=1.342$	0.267 [*] 0.03
	Sex	t-test	$t_{(91)}=0.868$	0.388 0.008
	Marital status	ANOVA	$F_{(2, 90)}=3.897$	0.024 0.08
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=14.902$	0.021 0.15
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=1.529$	0.466 0.02
	Age	Kruskal-Wallis	$\chi^2_{(2)}=3.045$	0.218 0.03
Q15d Influence on job location of desire for independence	Sex	Mann-Whitney	$U=797.5$	0.323 0.01
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=9.071$	0.011 0.10
	Ethnicity	ANOVA	$F_{(6, 86)}=1.079$	0.381 0.07
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=1.158$	0.560 0.03
	Age	Kruskal-Wallis	$\chi^2_{(2)}=0.381$	0.826 0.01
	Sex	Mann-Whitney	$U=334.0$	0.223 0.01
Q15e Influence on job location of conflict in the family	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=7.527$	0.023 0.10
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=10.367$	0.110 0.12

Dependent Variable	Independent Variable	Statistical Test	Result	
			Statistic	p η^2
Q15f Influence on job location of relationship plans	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=1.291$	0.524 0.01
	Age	ANOVA	$F_{(2, 68)}=2.571$	0.084 0.07
	Sex	Mann-Whitney	$U=507.0$	0.805 0.002
Q15g Influence on job location of plans for children	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=20.169$	<0.0005 0.28
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=6.725$	0.347 0.09
	Job location type	ANOVA	$F_{(2, 64)}=0.461$	0.633 0.01
Q15h Influence on job location of partner's plans for children	Age	Kruskal-Wallis	$\chi^2_{(2)}=8.951$	0.011 0.13
	Sex	t-test	$t_{(65)}=0.535$	0.594 0.004
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=17.958$	<0.0005 0.26
Q15e Influence on job location of personal career plans	Ethnicity	ANOVA	$F_{(6, 60)}=0.655$	0.686 0.06
	Job location type	ANOVA	$F_{(2, 41)}=0.529$	0.593 0.03
	Age	Kruskal-Wallis	$\chi^2_{(2)}=3.989$	0.136 0.08
Q15f Influence on job location of relationship plans	Sex	t-test	$t_{(42)}=0.656$	0.515 0.01
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=15.457$	<0.0005 0.36
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=1.250$	0.974 0.04
Q15g Influence on job location of plans for children	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=0.592$	0.744 0.006
	Age	Kruskal-Wallis	$\chi^2_{(2)}=0.766$	0.682 0.006
	Sex	Mann-Whitney	$U=783.0$	0.076 0.03
Q15h Influence on job location of partner's plans for children	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=2.737$	0.255 0.03
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=6.481$	0.372 0.08

Dependent Variable	Independent Variable	Statistical Test	Result			
			Statistic	p	η^2	
Q15f Influence on job location of partner's career plans	Job location type	ANOVA	$F_{(2, 50)}=0.256$	0.775	0.01	
	Age	ANOVA	$F_{(2, 50)}=1.615$	0.209	0.06	
	Sex	t-test	$t_{(51)}=0.832$	0.409	0.01	
Q17a Influence on job location of PHAR 369 location	Marital status	ANOVA	$F_{(2, 50)}=7.691$	0.001	0.23	
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=8.196$	0.224	0.14	
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=3.046$	0.218	0.03	
	Age	Kruskal-Wallis	$\chi^2_{(2)}=1.294$	0.524	0.007	
	Sex	t-test	$t_{(97)}=-0.917$	0.361	0.009	
		Marital status	ANOVA	$F_{(2, 96)}=1.654$	0.197	0.03
Q17b Influence on job location of PHAR 469 location	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=3.584$	0.733	0.04	
	Job location type	ANOVA	$F_{(2, 96)}=1.169$	0.315	0.02	
	Age	Kruskal-Wallis	$\chi^2_{(2)}=6.095$	0.047	0.04	
	Sex	t-test	$t_{(97)}=0.610$	0.544	0.004	
		Marital status	ANOVA	$F_{(2, 96)}=0.572$	0.566	0.01
		Ethnicity	ANOVA	$F_{(6, 92)}=1.370$	0.235	0.08
Q17c Influence on job location of PHAR 479 location	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=1.478$	0.478	0.02	
	Age	Kruskal-Wallis	$\chi^2_{(2)}=3.653$	0.161	0.03	
	Sex	t-test	$t_{(97)}=1.481$	0.142	0.02	
		Marital status	ANOVA	$F_{(2, 96)}=0.170$	0.844	0.004
		Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=4.792$	0.571	0.04

Dependent Variable	Independent Variable	Statistical Test	Result		
			Statistic	p	η^2
Q17d Influence on job location of PHAR 489 location	Job location type	ANOVA	$F_{(2, 96)}=1.703$	0.188	0.03
	Age	ANOVA	$F_{(2, 96)}=0.853$	0.429	0.02
	Sex	t-test	$t_{(97)}=0.366$	0.715	0.001
	Marital status	ANOVA	$F_{(2, 96)}=0.287$	0.751	0.006
	Ethnicity	Kruskal- Wallis	$\chi^2_{(6)}=3.003$	0.808	0.03
Q18a-d Sports & physical activities	Job location type	Chi-Square	$\chi^2_{(2)}=1.26$	>0.10	N/A
	Job location type	Chi-Square	$\chi^2_{(2)}=9.52$	<0.02	N/A
	Job location type	Chi-Square	$\chi^2_{(2)}=3.37$	>0.10	N/A
	Job location type	Chi-Square	$\chi^2_{(2)}=3.83$	>0.10	N/A
	Job location type	Chi-Square	$\chi^2_{(2)}=3.43$	>0.10	N/A
	Job location type	Chi-Square	$\chi^2_{(2)}=6.92$	<0.05	N/A
	Job location type	Chi-Square	$\chi^2_{(2)}=0.35$	>0.10	N/A
	Job location type	Chi-Square	$\chi^2_{(2)}=2.29$	>0.10	N/A
	Job location type	Chi-Square	$\chi^2_{(2)}=1.88$	>0.10	N/A
	Job location type	Chi-Square	$\chi^2_{(2)}=0.33$	>0.10	N/A
	Job location type	Chi-Square	$\chi^2_{(2)}=0.72$	>0.10	N/A
	Job location type	Chi-Square	$\chi^2_{(2)}=5.66$	>0.05	N/A
	Job location type	Chi-Square	$\chi^2_{(2)}=1.19$	>0.10	N/A
	Job location type	Chi-Square	$\chi^2_{(2)}=0.77$	>0.10	N/A
	Job location type	Chi-Square	$\chi^2_{(2)}=1.83$	>0.10	N/A

Dependent Variable	Independent Variable	Statistical Test	Result		
			Statistic	p	η^2
Q18a-d Sports & physical activities	Rollerblading	Chi-Square	$\chi^2_{(2)}=2.00$	>0.10	N/A
	Rowing	Chi-Square	$\chi^2_{(2)}=0.77$	>0.10	N/A
	Running	Chi-Square	$\chi^2_{(2)}=0.16$	>0.10	N/A
	Scuba diving	Chi-Square	$\chi^2_{(2)}=0.77$	>0.10	N/A
	Skating	Chi-Square	$\chi^2_{(2)}=0.86$	>0.10	N/A
	Skiing/boarding	Chi-Square	$\chi^2_{(2)}=13.51$	<0.01	N/A
	Snowmobiling	Chi-Square	$\chi^2_{(2)}=3.46$	>0.10	N/A
	Soccer	Chi-Square	$\chi^2_{(2)}=3.07$	>0.10	N/A
	Swimming	Chi-Square	$\chi^2_{(2)}=0.74$	>0.10	N/A
	Table tennis	Chi-Square	$\chi^2_{(2)}=1.43$	>0.10	N/A
	Tennis	Chi-Square	$\chi^2_{(2)}=1.67$	>0.10	N/A
	Volleyball	Chi-Square	$\chi^2_{(2)}=2.35$	>0.10	N/A
	Walking	Chi-Square	$\chi^2_{(2)}=0.44$	>0.10	N/A
	Yoga	Chi-Square	$\chi^2_{(2)}=0.61$	>0.10	N/A
Q18e-g Culture & entertainment activities	Arts/crafts	Chi-Square	$\chi^2_{(2)}=6.87$	<0.05	N/A
	Bars/pubs	Chi-Square	$\chi^2_{(2)}=1.10$	>0.10	N/A
	Bowling	Chi-Square	$\chi^2_{(2)}=1.43$	>0.10	N/A
	Clubs/lounges	Chi-Square	$\chi^2_{(2)}=0.03$	>0.10	N/A
	Coffee	Chi-Square	$\chi^2_{(2)}=0.61$	>0.10	N/A
	Computer	Chi-Square	$\chi^2_{(2)}=0.61$	>0.10	N/A

Dependent Variable	Independent Variable	Statistical Test	Result		
			Statistic	p	η^2
Q18e-g Culture & entertainment activities	Concerts	Chi-Square	$\chi^2_{(2)}=2.11$	>0.10	N/A
	Cooking	Chi-Square	$\chi^2_{(2)}=0.71$	>0.10	N/A
	Dine out	Chi-Square	$\chi^2_{(2)}=1.16$	>0.10	N/A
	Eating	Chi-Square	$\chi^2_{(2)}=2.20$	>0.10	N/A
	Friends	Chi-Square	$\chi^2_{(2)}=0.42$	>0.10	N/A
	Movies	Chi-Square	$\chi^2_{(2)}=0.50$	>0.10	N/A
	Music	Chi-Square	$\chi^2_{(2)}=0.07$	>0.10	N/A
	Opera	Chi-Square	$\chi^2_{(2)}=0.86$	>0.10	N/A
	Poker	Chi-Square	$\chi^2_{(2)}=0.86$	>0.10	N/A
	Pro sports	Chi-Square	$\chi^2_{(2)}=1.16$	>0.10	N/A
Q18h Religious & spiritual activities	Reading	Chi-Square	$\chi^2_{(2)}=1.04$	>0.10	N/A
	Shopping	Chi-Square	$\chi^2_{(2)}=3.00$	>0.10	N/A
	Theatre	Chi-Square	$\chi^2_{(2)}=1.55$	>0.10	N/A
	Television	Chi-Square	$\chi^2_{(2)}=2.59$	>0.10	N/A
	Video games	Chi-Square	$\chi^2_{(2)}=1.55$	>0.10	N/A
	Bible study	Chi-Square	$\chi^2_{(2)}=0.86$	>0.10	N/A
	Church	Chi-Square	$\chi^2_{(2)}=3.57$	>0.10	N/A
	Fellowship	Chi-Square	$\chi^2_{(2)}=0.86$	>0.10	N/A
	Community & volunteer activities	Chi-Square	$\chi^2_{(2)}=0.86$	>0.10	N/A
	Coach	Chi-Square	$\chi^2_{(2)}=6.92$	<0.05	N/A

Dependent Variable	Independent Variable	Statistical Test	Result		
			Statistic	p	η^2
Community	Job location type	Chi-Square	$\chi^2_{(2)}=5.19$	>0.05	N/A
	Hospital	Chi-Square	$\chi^2_{(2)}=1.72$	>0.10	N/A
	Organization	Chi-Square	$\chi^2_{(2)}=0.57$	>0.10	N/A
	Soup kitchen	Chi-Square	$\chi^2_{(2)}=1.15$	>0.10	N/A
Q18 Influence on job location of # of city-based activities	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=4.315$	0.166	0.04
	Age	Kruskal-Wallis	$\chi^2_{(2)}=3.454$	0.178	0.04
	Sex	t-test	$t_{(91)}=-2.004$	0.048	0.04
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=6.772$	0.034	0.06
	Ethnicity	Kruskal-Wallis	$\chi^2_{(2)}=11.258$	0.081	0.12
	Job location type	ANOVA	$F_{(2, 90)}=6.003$	0.004	0.12
	Age	ANOVA	$F_{(2, 90)}=1.229$	0.298	0.03
	Sex	Mann-Whitney	$U=711.0$	0.033	0.04
	Marital status	ANOVA	$F_{(2, 90)}=0.522$	0.595	0.01
	Ethnicity	Kruskal-Wallis	$\chi^2_{(2)}=16.289$	0.012	0.22
Q18 Influence on job location of % of activities = sports	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=10.476$	0.005	0.08
	Age	Kruskal-Wallis	$\chi^2_{(2)}=3.136$	0.208	0.10
	Sex	Mann-Whitney	$U=682.0$	0.023	0.15
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=1.126$	0.570	0.008
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=15.259$	0.018	0.30

Dependent Variable	Independent Variable	Statistical Test	Result	
			Statistic	p η^2
Q18 Influence on job location of % of activities = culture	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=4.621$	0.099 0.03
	Age	Kruskal-Wallis	$\chi^2_{(2)}=1.241$	0.538 0.007
	Sex	Mann-Whitney	$U=653.5$	0.012 0.05
	Marital status	ANOVA	$F_{(2, 90)}=0.904$	0.409 0.02
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=10.430$	0.108 0.10
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=4.192$	0.123 0.05
Q18 Influence on job location of % of activities = religious	Age	Kruskal-Wallis	$\chi^2_{(2)}=0.070$	0.966 <0.001
	Sex	Mann-Whitney	$U=885.5$	0.417 0.004
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=0.869$	0.648 0.008
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=11.432$	0.076 0.11
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=2.574$	0.276 0.04
	Age	Kruskal-Wallis	$\chi^2_{(2)}=8.223$	0.016 0.08
Q18 Influence on job location of % of activities = volunteer	Sex	Mann-Whitney	$U=872.0$	0.401 0.007
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=2.911$	0.233 0.02
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=10.658$	0.100 0.10
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=18.423$	<0.0005 0.18
	Age	Kruskal-Wallis	$\chi^2_{(2)}=1.690$	0.429 0.02
	Sex	t-test	$t_{(95)}=1.228$	0.223 0.02
Q19a Influence on job location of sports/physical activities	Marital status	ANOVA	$F_{(2, 94)}=1.151$	0.321 0.02
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=13.409$	0.037 0.13

Dependent Variable	Independent Variable	Statistical Test	Result	
			Statistic	p η^2
Q19a Influence on job location of cultural/social activities	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=7.846$	0.020 0.08
	Age	ANOVA	$F_{(2, 94)}=0.647$	0.526 0.01
	Sex	Mann-Whitney	$U=871.0$	0.272 0.02
Q19b Influence on job location of religious activities	Marital status	ANOVA	$F_{(2, 94)}=0.980$	0.379 0.02
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=5.790$	0.447 0.06
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=6.311$	0.043 0.08
	Age	Kruskal-Wallis	$\chi^2_{(2)}=5.622$	0.060 0.06
	Sex	Mann-Whitney	$U=568.0$	0.151 0.02
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=1.528$	0.466 0.01
Q19c Influence on job location of volunteer activities	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=12.008$	0.062 0.13
	Job location type	ANOVA	$F_{(2, 88)}=0.495$	0.612 0.01
	Age	ANOVA	$F_{(2, 88)}=0.660$	0.519 0.01
	Sex	t-test	$t_{(89)}=-0.812$	0.419 0.007
	Marital status	ANOVA	$F_{(2, 88)}=0.091$	0.913 0.002
	Ethnicity	ANOVA	$F_{(6, 84)}=0.208$	0.973 0.01

Dependent Variable	Independent Variable	Statistical Test	Result		
			Statistic	P	η^2
Q20 Level of salary	Job location type	ANOVA	$F_{(2, 96)}=13.74$	<0.0005	0.22
	Age	ANOVA	$F_{(2, 96)}=1.455$	0.238	0.03
	Sex	t-test	$t_{(97)}=2.102$	0.038	0.04
	Marital status	ANOVA	$F_{(2, 96)}=1.934$	0.150	0.04
	Ethnicity	ANOVA	$F_{(6, 92)}=2.825$	0.014	0.16
	Scholarship	ANOVA	$F_{(1, 97)}=0.848$	0.359	0.009
Q21 Level of debt	Job location type	ANOVA	$F_{(2, 96)}=2.301$	0.106	0.05
	Age	Kruskal-Wallis	$\chi^2_{(2)}=12.785$	0.002	0.12
	Sex	Mann-Whitney	$U=959.0$	0.460	0.007
	Marital status	ANOVA	$F_{(2, 96)}=6.558$	0.002	0.12
	Ethnicity	ANOVA	$F_{(6, 92)}=3.038$	0.009	0.17
	Scholarship	ANOVA	$F_{(1, 97)}=0.758$	0.386	0.008
Q23a Signing bonus offered	Job location type	Chi-Square	$\chi^2_{(2)}=18.119$	<0.0001	N/A
	Age	Chi-Square	$\chi^2_{(2)}=4.968$	>0.05	N/A
	Sex	Chi-Square	$\chi^2_{(2)}=3.294$	>0.05	N/A
	Marital status	Chi-Square	$\chi^2_{(2)}=0.262$	>0.10	N/A
	Ethnicity	Chi-Square	$\chi^2_{(2)}=10.780$	>0.05	N/A

Dependent Variable	Independent Variable	Statistical Test	Result		
			Statistic	<i>p</i>	η^2
Q23b Moving expenses offered	Job location type	Chi-Square	$\chi^2_{(2)}=26.062$	<0.0001	N/A
	Age	Chi-Square	$\chi^2_{(2)}=1.358$	>0.10	N/A
	Sex	Chi-Square	$\chi^2_{(2)}=0.830$	>0.10	N/A
	Marital status	Chi-Square	$\chi^2_{(2)}=1.473$	>0.10	N/A
	Ethnicity	Chi-Square	$\chi^2_{(2)}=14.149$	<0.05	N/A
Q23c PEBC exam fees offered	Job location type	Chi-Square	$\chi^2_{(2)}=1.788$	>0.10	N/A
	Age	Chi-Square	$\chi^2_{(2)}=0.287$	>0.10	N/A
	Sex	Chi-Square	$\chi^2_{(2)}=0.011$	>0.10	N/A
	Marital status	Chi-Square	$\chi^2_{(2)}=1.426$	>0.10	N/A
	Ethnicity	Chi-Square	$\chi^2_{(2)}=2.862$	>0.10	N/A
Q23d License fees offered	Job location type	Chi-Square	$\chi^2_{(2)}=1.031$	>0.10	N/A
	Age	Chi-Square	$\chi^2_{(2)}=0.931$	>0.10	N/A
	Sex	Chi-Square	$\chi^2_{(2)}=0.044$	>0.10	N/A
	Marital status	Chi-Square	$\chi^2_{(2)}=1.661$	>0.10	N/A
	Ethnicity	Chi-Square	$\chi^2_{(2)}=2.893$	>0.10	N/A
Q23e BCPhA membership fees offered	Job location type	Chi-Square	$\chi^2_{(2)}=3.119$	>0.10	N/A
	Age	Chi-Square	$\chi^2_{(2)}=1.923$	>0.10	N/A
	Sex	Chi-Square	$\chi^2_{(2)}=0.792$	>0.10	N/A
	Marital status	Chi-Square	$\chi^2_{(2)}=1.312$	>0.10	N/A
	Ethnicity	Chi-Square	$\chi^2_{(2)}=2.506$	>0.10	N/A

Dependent Variable	Independent Variable	Statistical Test	Result		
			Statistic	p	η^2
Q23f ECP certification course fees offered	Job location type	Chi-Square	$\chi^2_{(2)}=1.921$	>0.10	N/A
	Age	Chi-Square	$\chi^2_{(2)}=0.693$	>0.10	N/A
	Sex	Chi-Square	$\chi^2_{(2)}=0.166$	>0.10	N/A
	Marital status	Chi-Square	$\chi^2_{(2)}=1.400$	>0.10	N/A
	Ethnicity	Chi-Square	$\chi^2_{(2)}=2.679$	>0.10	N/A
	Job location type	Chi-Square	$\chi^2_{(2)}=0.330$	>0.10	N/A
Q23g Other CE costs offered	Age	Chi-Square	$\chi^2_{(2)}=0.856$	>0.10	N/A
	Sex	Chi-Square	$\chi^2_{(2)}=1.025$	>0.10	N/A
	Marital status	Chi-Square	$\chi^2_{(2)}=1.180$	>0.10	N/A
	Ethnicity	Chi-Square	$\chi^2_{(2)}=3.823$	>0.10	N/A
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=8.961$	0.011	0.08
	Age	ANOVA	$F_{(2, 93)}=0.329$	0.720	0.007
Q24a Influence on job location of salary	Sex	Mann-Whitney	$U=497.0$	<0.0005	0.14
	Marital status	ANOVA	$F_{(2, 93)}=0.044$	0.957	0.001
	Ethnicity	ANOVA	$F_{(6, 89)}=1.598$	0.157	0.10
	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=7.918$	0.019	0.10
	Age	Kruskal-Wallis	$\chi^2_{(2)}=5.074$	0.079	0.06
	Sex	t-test	$t_{(83)}=1.819$	0.073	0.04
Q24b Influence on job location of debt	Marital status	ANOVA	$F_{(2, 82)}=3.653$	0.030	0.08
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=11.089$	0.086	0.14

Dependent Variable	Independent Variable	Statistical Test	Result		
			Statistic	p	η^2
Q24c Influence on job location of terms of scholarship	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=0.050$	0.975	0.009
	Age	Kruskal-Wallis	$\chi^2_{(2)}=1.324$	0.516	0.02
	Sex	Mann-Whitney	$U=323.5$	0.630	0.001
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=5.724$	0.057	0.15
	Ethnicity	Kruskal-Wallis	$\chi^2_{(6)}=8.793$	0.186	0.13
Q24d Influence on job location of signing bonus/benefits	Job location type	ANOVA	$F_{(2, 86)}=3.823$	0.026	0.08
	Age	ANOVA	$F_{(2, 86)}=1.196$	0.307	0.03
	Sex	t-test	$t_{(87)}=2.103$	0.038	0.05
	Marital status	ANOVA	$F_{(2, 86)}=1.017$	0.366	0.02
	Ethnicity	ANOVA	$F_{(6, 82)}=1.034$	0.409	0.07
Q24e Influence on job location of cost of living	Job location type	Kruskal-Wallis	$\chi^2_{(2)}=4.420$	0.110	0.05
	Age	Kruskal-Wallis	$\chi^2_{(2)}=0.375$	0.829	0.004
	Sex	Mann-Whitney	$U=588.0$	0.003	0.09
	Marital status	Kruskal-Wallis	$\chi^2_{(2)}=0.388$	0.824	0.003
	Ethnicity	ANOVA	$F_{(6, 88)}=1.238$	0.295	0.08

Dependent Variable	Independent Variable	Statistical Test	Result		
			Statistic	<i>p</i>	η^2
Logistic regression	Location @ admission + # of non-CMA practicums	Logistic regression	$\chi^2_{(2)}=34.178$	<0.0005	N/A
Logistic regression	Location @ admission + # of non-CMA practicums + Debt >\$30,000 + Sex + Marital status + # of non-CMA activities	Logistic regression	$\chi^2_{(6)}=53.321$	<0.0005	N/A

APPENDIX IV

Table 20. Comparison of strong location influences from interviews and surveys

Participant	Location Influences from Interview	Location Influences from Survey
#1	Familiarity with community Community size & pace of life Proximity to family Proximity to boyfriend Terms of scholarship program	Familiarity with community Community size & pace of life Proximity to boyfriend Long term career plans Terms of scholarship program
#2	Familiarity with community Community size and pace of life Proximity to family	Familiarity with community Community size & pace of life Proximity to family Long term career plans PHAR 403 clerkship experience Salary & cost of living
#3	Familiarity with community Access to leisure activities	Familiarity with community Community size Proximity to family Access to leisure activities
#4	Familiarity with community Proximity to family Cost of living	Proximity to family Sense of family duty Pace of life Job satisfaction Long term career plans Salary & cost of living
#5	Familiarity with community Proximity to family	Familiarity with community Proximity to family Desire for independence Salary
#6	Familiarity with community Job satisfaction Access to leisure activities Short commute time Cost of living	Familiarity with community Pace of life Job satisfaction Long term career plans PHAR 469 clerkship experience

Participant	Location Influences from Interview	Location Influences from Survey
#7	Familiarity with community Proximity to family Proximity to boyfriend Proximity to friends	Familiarity with community Pace of life Proximity to family Proximity to boyfriend Sense of family duty Long term career & relationship plans Cost of living
#8	Familiarity with community Pace of life Proximity to fiancé Access to leisure activities	Familiarity with community Community size and pace of life Proximity to fiancé Long term relationship plans Opportunity for independence Access to leisure activities Salary & debt load
#9	Familiarity with community Pace of life Career opportunity for spouse Terms of scholarship	Familiarity with community Proximity to family Long term career & relationship plans Access to leisure activities Terms of scholarship
#10	Familiarity with community Proximity to family Familiarity with the pharmacy	Proximity to family Job satisfaction Long term career & relationship plans Access to leisure activities Salary
#11	Familiarity with community Proximity to family Job satisfaction Debt load	Familiarity with community Job satisfaction Long term career plans PHAR 469 clerkship Salary, debt load, & cost of living
#12	New experience Desire for independence Proximity to relatives Salary & debt load	New experience Desire for independence Job satisfaction Salary & debt load

REFERENCES

- Adams, O., Buske, L., Chauhan, T. S., Cooper, J., Little, L., Marcus, L., et al. (2003). *The development of a multistakeholder framework/index of rurality*. Retrieved May 24, 2005, from http://www.pharmacists.ca/content/about_cpha/whats_happening/cpha_in_action/pdf/RuralityFrameworkFinalReportE.pdf
- Alasia, A. (2003). Rural and urban educational attainment: An investigation of patterns and trends, 1981 - 1996. *Rural and Small Town Canada Analysis Bulletin*, 4(5). Retrieved January 24, 2008, from <http://www.statcan.ca/english/freepub/21-006-XIE/21-006-XIE2002005.pdf>
- Andres, L., & Licker, A. (2005). Beyond brain drain: The dynamics of geographic mobility and educational attainment of B.C. young men and women. *Canadian Journal of Higher Education*, 35(1), 1-36.
- Andres, L., & Looker, E. D. (2001). Rurality and capital: Educational expectations and attainments of rural, urban/rural and metropolitan youth. *Canadian Journal of Higher Education*, 31(2), 1-46. Retrieved February 1, 2008, from <http://www.ingentaconnect.com/content/csshe/cjhe/2001/00000031/00000002/art00001>
- Austin, I., & Hunter, S. (2008, January 10). *Province's doctor shortage reaching crisis proportions*. Retrieved February 1, 2008, from <http://www.canada.com/theprovince/news/story.html?id=8ae8fcc4-7909-4e4c-b1ae-a10a063714f4&k=7796>

- Barer, M. L., & Stoddart, G. L. (1999). *Improving access to needed medical services in rural and remote Canadian communities: Recruitment and retention revisited*. Retrieved February 17, 2008, from <http://www.srpc.ca/librarydocs/BarSto99.pdf>
- BC Academic Health Council. (2007). *Interprofessional rural program of BC*. Retrieved January 12, 2008, from <http://www.bcahc.ca/irpbc/default.asp?pageid=1>
- BC Ministry of Advanced Education. (2007). *Employment outlook for British Columbia: COPS BC unique scenario for 2005 to 2015*. Retrieved January 31, 2008, from http://www.aved.gov.bc.ca/labourmarketinfo/reports/COPS_BCUnique_2006.pdf
- BC Ministry of Advanced Education. (2008). *BC loan forgiveness program: What is an underserved community?* Retrieved February 20, 2008, 2008, from http://www.aved.gov.bc.ca/studentaidbc/repay/repaymentassistance/faq_loanforgiveness.htm#1
- BC Ministry of Education. (2007a). *Aboriginal report 2002/03 – 2006/07: How are we doing?* Retrieved February 12, 2008, from <http://www.bced.gov.bc.ca/abed/perf2007.pdf>
- BC Ministry of Education. (2007b). *Six-year completion rate 2006/7*. Retrieved February 12, 2008, from http://www.bced.gov.bc.ca/reports/pdfs/exams/comp_rate/prov.pdf
- BC Ministry of Health. (2007). *Rural and remote health initiative*. Retrieved January 7, 2008, from <http://www.health.gov.bc.ca/rural/initiative.html>
- BC Pharmacy Association. (2002). *Critical shortage of pharmacists*. Retrieved May 23, 2005, from http://www.bcpharmacy.ca/public/pressroom/position_statements/BCPhA%20 Stmt-Critical%20Shortage-Final.PDF

- BC Pharmacy Association. (2006a). *BC pharmacy conference registration form*. Retrieved March 19, 2008, from http://www.bcpharmacy.ca/about_us/2006_conference/registration_form.htm
- BC Pharmacy Association. (2006b). *Membership payment and refunds*. Retrieved January 20, 2008, from http://www.bcpharmacy.ca/member_benefits/payment_refunds.htm
- BC Pharmacy Association. (2008). *Report to the Pharmaceutical Task Force*. Retrieved August 27, 2008, from http://www.bcpharmacy.ca/government_relations/documents/ReporttothePharmaceuticalTaskForce.pdf
- BC Pharmacy Practice Residency Program. (2004). *About the program*. Retrieved March 18, 2008, from <http://www.pharmacy.ubc.ca/residency/about.htm>
- BC STATS. (2000). *Migration of rural youth*. Retrieved February 11, 2008, from <http://www.bcstats.gov.bc.ca/pubs/mig/mig002fa.pdf>
- BC STATS. (2006a). *British Columbia regional employment projection model: Industry and occupation projections 2006 to 2011 (Mainland/Southwest development region)*. Retrieved January 31, 2008 from <http://www.bcstats.gov.bc.ca/DATA/lss/repn/dr2.pdf>
- BC STATS. (2006b). *Census 2006: BC municipal and regional district 2006 census total population results*. Retrieved November 8, 2007, from http://www.bcstats.gov.bc.ca/DATA/cen06/mun_rd.asp

BC STATS. (2006c). *Census 2006: Designated places population and dwellings grouped by regional district*. Retrieved November 8, 2007, from <http://www.bcstats.gov.bc.ca/DATA/cen06/dpl2006.asp>

BC STATS. (2007). *Regional employment projections*. Retrieved January 31, 2008, from <http://www.bcstats.gov.bc.ca/DATA/lss/repm.asp#reports>

BC STATS. (2008). *Profile of diversity*. Retrieved July 1, 2008, from http://www.bcmulticulturalprofiles.gov.bc.ca/imb_profiles/immigration/2006profiles/profiles/diversity%20profiles/British%20Columbia.PDF

BC Work Futures. (2005). *Occupational profile: Pharmacists*. Retrieved January 28, 2008, from <http://www.workfutures.bc.ca/profiles/profile.cfm?noc=3131>

Bourdieu, P. (1986). The forms of capital (R. Nice, Trans.). In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241-258). New York: Greenwood Press. (Original work published in 1983)

Brown, S. R., & Birnbaum, B. (2005). Student and resident education and rural practice in the Southwest Indian Health Service: A physician survey. *Family Medicine*, 37(10), 701-705. Retrieved January 4, 2008, from <http://www.stfm.org/fmhub/fm2005/November-December/Steven701.pdf>

Canadian Diabetes Educator Certification Board. (2007). *Examination handbook 2008*. Retrieved January 20, 2008, from <http://www.cdec.ca/Handbook%202008.pdf>

- Canadian Institute for Health Information. (2007). *Distribution and internal migration of Canada's pharmacist workforce*. Retrieved January 31, 2008, from http://secure.cihi.ca/cihiweb/products/2007_MedSono_EN_web.pdf
- Canadian Pharmacists Association. (2008a). *Blueprint for pharmacy: Consultation report*. Retrieved August 14, 2008, from http://www.pharmacists.ca/content/About_CPHA/Whats_Happening/CPhA_in_Action/pdf/BPConsultReport.pdf
- Canadian Pharmacists Association. (2008b). *Membership categories*. Retrieved January 20, 2008, from http://www.pharmacists.ca/content/about_cpha/membership_info/membership_categories/index.cfm
- Carter, R. G. (1987). The relation between personal characteristics of physicians and practice location in Manitoba. *Canadian Medical Association Journal*, 136(4), 366-368.
- Carvajal, M. J., & Hardigan, P. (1999). First-job preference and expectations of pharmacy students: Intergender and interethnic comparisons. *Journal of the American Pharmaceutical Association*, 39(1), 32-40.
- Centre for Health Services and Policy Research. (2005). *The British Columbia Rx atlas*. Retrieved February 1, 2008, from <http://www.chspr.ubc.ca/files/publications/2005/chspr05-36R.pdf>
- Cheng, P. (2006). *Pharmacist shortage survey 2005*. Retrieved January 30, 2008, from http://www.cshp-bc.com/publications/Pharmacist_shortage_2005.pdf

Chua, P. (2002). *Community pharmacy workforce survey*. Retrieved May 23, 2005, from http://www.bcpharmacists.org/resources/projects/pdf/Community_Pharm_Workforce_Survey_2002.pdf

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94(Supplement), S95-S120. Retrieved February 4, 2008, from <http://www.jstor.org/cgi-bin/jstor/printpage/00029602/dm992703/99p0163q/0.pdf?backcontext=page&dowhat=Acrobat&config=jstor&userID=8e675ca3@ubc.ca/01c0a83472829811839b7cb5c&0.pdf>

Coleman, J. S. (1990). *Foundations of social theory*. Cambridge, MA: Harvard University Press.

College of Pharmacists of British Columbia. (2006a). *Bylaws of the Council of the College of Pharmacists of British Columbia*. Retrieved August 17, 2008, from <http://www.bcpharmacists.org/legislation/pdf/Bylaws.pdf>

College of Pharmacists of British Columbia. (2006b). OnCall pharmacist information line: Questions and answers. *ReadLinks*, 31(1), 5. Retrieved August 17, 2008, from http://www.bcpharmacists.org/RLO/pdf/JanFeb06.pdf#xml=http://search.atomz.com/search/pdfhelper.tk?sp_o=4,100000,0

College of Pharmacists of British Columbia. (2006c). *Rules of the College of Pharmacists of British Columbia: Districts*. Retrieved January 20, 2008, from <http://www.bcpharmacists.org/legislation/pdf/Rules.pdf>

College of Pharmacists of British Columbia. (2007a). *Annual report 2006/2007*.

- College of Pharmacists of British Columbia. (2007b). *2007-2008 Fee schedule*. Retrieved January 20, 2008, from http://www.bcpharmacists.org/resources/community/pdf/Fee_schedule_2007_08.pdf
- College of Pharmacists of British Columbia. (2007c). What went wrong? Codeine syrup – dangerous “near miss” in the community. *ReadLinks*, 32(5), 7. Retrieved August 17, 2008, from http://www.bcpharmacists.org/resources/cpbc/pdf/sep-oct_07_rl_web.pdf#xml=http://search.atomz.com/search/pdfhelper.tk?sp_o=6,100000,0
- du Plessis, V., Beshiri, R., & Bollman, R. D. (2001). Definitions of rural. *Rural and Small Town Canada Analysis Bulletin*, 3(3). Retrieved January 24, 2008, from <http://www.theruralcentre.com/Definitions%20of%20Rural%20RST.pdf>
- Dunbabin, J., & Levitt, L. (2003). Rural origin and rural medical exposure: Their impact on the rural and remote medical workforce in Australia. *Rural and Remote Health*, 3(1). Retrieved February 17, 2008, from <http://www.rrh.org.au/articles/subviewnew.asp?ArticleID=212>
- Dyk, P. H., & Wilson, S. M. (1999). Family-based social capital considerations as predictors of attainments among Appalachian youth. *Sociological Inquiry*, 69(3), 477-503. Retrieved February 4, 2008, from <http://www.blackwell-synergy.com/toc/soin/69/3>
- Easterbrook, M., Godwin, M., Wilson, R., Hodgetts, G., Brown, G., Pong, R., et al. (1999). Rural background and clinical rural rotations during medical training: Effect on practice location. *Canadian Medical Association Journal*, 160(8), 1159-1163.
- Field, A. (2005). *Discovering statistics using SPSS* (2nd ed.). London: Sage Publications Ltd.

Field, J. (2003). *Social capital*. London: Routledge.

Finnie, R. (2005). Access to post-secondary education: An analytical framework and new evidence on background effects. In R. Sweet, & P. Anisef (Eds.), *Preparing for post-secondary education: New roles for governments and families* (pp. 17-54). Montreal & Kingston: McGill-Queen's University Press.

Frenette, M. (2002). *Too far to go on? Distance to school and university participation*. Retrieved May 2, 2008, from <http://www.statcan.ca/english/research/11F0019MIE/11F0019MIE2002191.pdf>

Frenette, M. (2007). *Do universities benefit local youth? Evidence from university and college participation, and graduate earnings following the creation of a new university*. Retrieved May 2, 2008, from <http://www.statcan.ca/english/research/11F0019MIE/11F0019MIE2006283.pdf>

Government of BC. (2001). *Subsidiary agreement for physicians in rural practice*. Retrieved January 12, 2008, from <http://www.health.gov.bc.ca/rural/pdf/rsa.pdf>

Government of Canada. (2006). *Rural youth unemployment rates*. Retrieved February 15, 2008, from http://www.rural.gc.ca/research/note/note2_e.pdf

Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, 78(6), 1360-1380. Retrieved June 26, 2008, from <http://www.jstor.org/stable/pdfplus/2776392.pdf>

Greenacre, M. (2007). *Correspondence analysis in practice* (2nd ed.). Boca Raton, FL: Chapman & Hall.

Griffith, D. A. (1994). A Northern Territory approach to quantifying "access disadvantage" in remote and rural Australia. Paper presented at the *Issues Affecting Rural Communities* conference, Townsville, Australia. Retrieved January 2, 2008, from http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/14/52/3d.pdf

Halpern, D. (2005). *Social capital*. Cambridge: Polity Press.

Hansen, T. D., & McIntire, W. G. (1989). Family structure variables as predictors of educational and vocational aspirations of high school seniors. *Research in Rural Education, 6*(2), 39-49.

Harding, A., Whitehead, P., Aslani, P., & Chen, T. (2006). Factors affecting the recruitment and retention of pharmacists to practice sites in rural and remote areas of New South Wales: A qualitative study. *Australian Journal of Rural Health, 14*(5), 214-218. Retrieved January 28, 2008, from <http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=22615229&site=ehost-live>

Heaney, S. E., Tolhurst, H., & Baines, S. K. (2004). Choosing to practice in rural dietetics: What factors influence that decision? *Australian Journal of Rural Health, 12*(5), 192-196. Retrieved May 31, 2005, from <http://search.epnet.com/login.aspx?direct=true&db=aph&an=15182106>

- Huck, S. W. (2008). *Reading statistics and research* (5th ed.). Boston, MA: Pearson Education.
- Human Resources Development Canada. (2001). *A situational analysis of human resource issues in the pharmacy profession in Canada*. Retrieved May 15, 2007, from <http://www.pharmacyhr.ca/Articles/Eng/68.pdf>
- Interior Health. (2007). *Health connections service providers*. Retrieved January 16, 2008, from <http://www.interiorhealth.ca/Health+Services/Transportation/>
- Keeley, B. (2007). *Human capital: How what you know shapes your life*. Paris: OECD.
- Kegel-Flom, P. (1977). Predictors of rural practice location. *Journal of Medical Education*, 52(3), 204-209.
- Kent, H. (2002). BC med school to become country's largest. *Canadian Medical Association Journal*, 166(10), 1320-1320.
- Kwong, J. C., Dhalla, I. A., Streiner, D. L., Baddour, R. E., Waddell, A. E., & Johnson, I. L. (2005). A comparison of Canadian medical students from rural and non-rural backgrounds. *Canadian Journal of Rural Medicine*, 10(1), 36-42. Retrieved May 29, 2005, from <http://search.epnet.com/login.aspx?direct=true&db=aph&an=15821440>
- Leduc, E. (1997). Defining rurality: A general practice rurality index for Canada. *Canadian Journal of Rural Medicine*, 2(125). Retrieved January 2, 2008, from http://www.cma.ca/index.cfm/ci_id/37440/la_id/1.htm

Levesque, M. (2005). Social capital, reducing poverty, and public policy. In Government of Canada Policy Research Initiative, *Social capital in action: Thematic policy studies* (pp.5-21). Retrieved June 26, 2008, from http://www.policyresearch.gc.ca/doclib/BK_SC_ThematicStudies_200509_e.pdf

Lin, N. (1999). Social networks and status attainment. *Annual Review of Sociology*, 25, 467-487. Retrieved June 26, 2008, from <http://www.jstor.org/stable/pdfplus/223513.pdf>

Lin, N. (2000). Inequality in social capital. *Contemporary Sociology*, 29(6), 785-795. Retrieved June 26, 2008, from <http://web.ebscohost.com/ehost/pdf?vid=3&hid=117&sid=aec8b714-c228-4b66-b918-7fc205fdff86%40sessionmgr102>

Lin, N. (2001). *Social capital*. Cambridge: Cambridge University Press.

London Drugs. (2008). *Store locator*. Retrieved February 2, 2008, from <http://www.londondrugs.com/Cultures/en-US/StoreLocator.htm?provid=1>

Looker, E. D. (2001). *Policy research issues for Canadian youth: An overview of human capital in rural and urban areas*. Retrieved February 4, 2008, from <http://www.hrsdc.gc.ca/en/cs/sp/hrsd/prc/publications/research/2001-000179/page04.shtml>

Malatest, R. A., & Associates. (2002). *Rural youth study, phase II, rural youth migration: Exploring the reality behind the myths*. Retrieved February 4, 2008, from http://www.rural.gc.ca/researchreports/youth2002/rym_e.pdf

- Malone, D. C., Abarca, J., Skrepnek, G. H., Murphy, J. E., Armstrong, E. P., Grizzle, A. J., Rehfeld, R. A., & Woosley, R. L. (2007). Pharmacist workload and pharmacy characteristics associated with the dispensing of potentially clinically important drug-drug interactions. *Medical Care*, 45(5), 456-462. Retrieved August 14, 2008, available from <http://ovidsp.tx.ovid.com/>
- McIntyre, P. (2008). *Armstrong doctors down to one*. Retrieved February 1, 2008, from <http://www.1075kiss.com/news/headlines/?page=2>
- Montgomery, J. C. (2003). The issues shared by professionals living and working in rural communities in British Columbia. *Canadian Journal of Rural Medicine*, 8(4), 255-260. Retrieved December 6, 2007, from http://www.cma.ca/index.cfm/ci_id/36640/la_id/1.htm
- Mott, D. A., Doucette, W. R., Gaither, C. A., Pedersen, C. A., & Schommer, J. C. (2002). A ten-year trend analysis of pharmacist participation in the workforce. *American Journal of Pharmaceutical Education*, 66(3), 223-233. Retrieved February 1, 2008, from <http://www.ajpe.org/legacy/pdfs/aj660303.pdf>
- Naumann, T. L. (2004). *Hospital pharmacist shortage survey*. Retrieved January 30, 2008, from <http://www.cshp-bc.com/publications/pharm%20shortage%20survey-report.pdf>
- North Carolina Board of Pharmacy. (1997). *Board statement March 26, 1997: Pharmacist workload*. Retrieved August 14, 2008, from <http://www.ncbop.org/lawsrules/pharmacistworkload.pdf>

Northern Health. (2007). *Northern Health connections: Routes and schedules*. Retrieved January 16, 2008, from http://www.northernhealth.ca/Your_Health/Programs/NH_Connections/20060628NHCRoutesandSchedules.asp

Pallant, J. (2005). *SPSS survival manual* (2nd ed.). Maidenhead, Berkshire, UK: Open University Press.

Pathman, D. E., Konrad, T. R., Dann, R., & Koch, G. (2004). Retention of primary care physicians in rural health professional shortage areas. *American Journal of Public Health, 94*(10), 1723-1729. Retrieved May 24, 2005, from <http://proquest.umi.com/pqdweb?sid=1&vinst=PROD&fmt=6&startpage=-1&clientid=6993&vname=PQD&RQT=309&did=715599121&scaling=FULL&vtype=PQD&rqt=309&cfc=1&TS=1209959923&clientId=6993>

Pathman, D. E., Konrad, T. R., & Ricketts, T. C. 3rd. (1992). The comparative retention of National Health Service Corps and other rural physicians. *Journal of the American Medical Association, 268*(12), 1552-1558. Retrieved February 17, 2008, from <http://jama.ama-assn.org/cgi/content/abstract/268/12/1552>

Peach, H. G., & Bath, N. E. (2000). Comparison of rural and non-rural students undertaking a voluntary placement in the early years of a medical course. *Medical Education, 34*(3), 231-233.

Pharmacists Board of Queensland. (2007). *Guidelines on appropriate workloads for pharmacists*. Retrieved August 14, 2008, from <http://www.pharmacyboard.qld.gov.au/publications/Policies/PharmacistsBoardWorkloads.pdf>

- Pharmacy Examining Board of Canada. (2008). *Schedule of fees*. Retrieved January 20, 2008, from <http://www.pebc.ca/EnglishPages/General/ScheduleFees.html>
- Pong, R. W., & Russell, N. (2003). *A review and synthesis of strategies and policy recommendations on the rural health workforce*. Retrieved January 2, 2008, from http://www.laurentian.ca/NR/rdonlyres/93AB730E-5D37-4E50-B490-12E80F3433A1/0/TORC_RuralhealthworkforcesynthesisfinaldraftMay.pdf
- Rabinowitz, H. K., Diamond, J. J., Markham, F. W., & Paynter, N. P. (2001). Critical factors for designing programs to increase the supply and retention of rural primary care physicians. *Journal of the American Medical Association*, 286(9), 1041-1048. Retrieved February 4, 2008, available from www.jama.com
- Rhyne, R. L., Daniels, Z. M., Skipper, B. J., Sanders, M. L., & VanLeit, B. J. (2006). Interdisciplinary health education and career choice in rural and underserved areas. *Medical Education*, 40(6), 504-513. Retrieved February 1, 2008, from <http://www.blackwell-synergy.com/toc/med/40/6>
- Rourke, J., Incitti, F., Rourke, L., & Kennard, M. (2005). Relationship between practice location of Ontario family physicians and their rural background or amount of rural medical education experience. *Canadian Journal of Rural Medicine*, 10(4), 231-239. Retrieved February 17, 2008, from http://www.cma.ca/index.cfm/ci_id/45816/la_id/1.htm

Rourke, J. (2005). Strategies to increase the enrolment of students of rural origin in medical school: Recommendations from the Society of Rural Physicians of Canada. *Canadian Medical Association Journal*, 172(1), 62-65. Retrieved May 25, 2005, from <http://search.epnet.com/login.aspx?direct=true&db=aph&an=15414846>

Save-on-Foods. (2008). *Pharmacy hours*. Retrieved February 1, 2008, from http://www.saveonfoods.com/pharmacyhealth/pharmacy_hours.htm

Sempowski, I. P. (2004). Effectiveness of financial incentives in exchange for rural and under serviced area return of service commitments: Systematic review of the literature. *Canadian Journal of Rural Medicine*, 9(2), 82-88. Retrieved February 17, 2008, from http://www.cma.ca/index.cfm/ci_id/36565/la_id/1.htm

Shoppers Drug Mart. (2008). *Store locator*. Retrieved February 1, 2008, from <http://web.sa.mapquest.com/shoppers/?tempset=search>

Spatz, C. (2005). *Basic statistics: Tales of distribution* (8th ed.). Belmont, CA: Thomson Wadsworth.

Stanton-Salazar, R. D., & Dornbusch, S. M. (1995). Social capital and the reproduction of inequality: Information networks among Mexican-origin high school students. *Sociology of Education*, 68(2), 116-135. Retrieved June 26, 2008, from <http://www.jstor.org/stable/2112778>

Statistics Canada. (2002a). *2001 Census dictionary: Postal code*. Retrieved November 8, 2007, from <http://www12.statcan.ca/english/census01/Products/Reference/dict/geo035.htm>

Statistics Canada. (2002b). *Census dictionary: Census metropolitan area and census agglomeration*. Retrieved December 15, 2007, from <http://www12.statcan.ca/english/census01/Products/Reference/dict/geo009.htm>

Statistics Canada. (2004). *2001 Census ethnic origin user guide*. Retrieved January 14, 2007, from http://www12.statcan.ca/english/census01/Products/Reference/tech_rep/ethnic.cfm#ethnic2001

Statistics Canada. (2006). *Census metropolitan areas and census agglomerations, 2006*. Retrieved November 8, 2007, from http://geodepot.statcan.ca/Diss2006/Maps/Maps_Cartes/SGT-CGT/Can_CMA-RMR_2006.pdf

Statistics Canada. (2008). *Aboriginal identity population by age groups, median age and sex, 2006 counts, for Canada, provinces and territories, and census metropolitan areas and census agglomerations – 20% sample data*. Retrieved July 1, 2008, from <http://www12.statcan.ca/english/census06/data/highlights/Aboriginal/pages/Page.cfm?Lang=E&Geo=CMA&Code=59&Table=1&Data=Count&Sex=1&Age=2&StartRec=1&Sort=2&Display=Page&CSDFilter=250>

Stratton, T. P. (2001). The economic realities of rural pharmacy practice. *Journal of Rural Health, 17*(2), 77-81.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed). Boston: Allyn & Bacon.

- Tavernier, L. A., Connor, P. D., Gates, D., & Wan, J. Y. (2003). Does exposure to medically underserved areas during training influence eventual choice of practice location? *Medical Education*, 37(4), 299-304. Retrieved May 31, 2005, from <http://search.epnet.com/login.aspx?direct=true&db=aph&an=9377787>
- UBC Student Services. (2008). *Awards, fees and finances: Scholarships and bursaries*. Retrieved August 25, 2008, from <http://www.students.ubc.ca/finance/awards.cfm?page=search&view=results>
- von Reichert, C. (2006). Community evaluation and migration intentions: The role of attraction and aversion to place on the Great Northern Plains. In W. A. Kandel, & D. L. Brown (Eds.), *Population change and rural society*. Dordrecht, The Netherlands: Springer.
- Ward, A. M., Kamien, M., & Lopez, D. G. (2004). Medical career choice and practice location: Early factors predicting course completion, career choice and practice location. *Medical Education*, 38(3), 239-248. Retrieved May 25, 2005, from <http://search.epnet.com/login.aspx?direct=true&db=aph&an=12405501>
- Warren, M. R., Thompson, J. P., & Saegert, S. (2001). The roles of social capital in combating poverty. In S. Saegert, J. P. Thompson, & M. R. Warren (Eds.), *Social capital and poor communities*. New York: Russell Sage Foundation.
- Wheels for Wellness Society. (2005). *Wheels for Wellness Society: About us*. Retrieved January 16, 2008, from <http://www.wheelsforwellness.com/aboutus.htm>

- Wilkinson, D., Laven, G., Pratt, N., & Beilby, J. (2003). Impact of undergraduate and postgraduate rural training, and medical school entry criteria on rural practice among Australian general practitioners: National study of 2414 doctors. *Medical Education*, 37(9), 809. Retrieved May 25, 2005, from <http://search.epnet.com/login.aspx?Direct=true&db=aph&an=10691800>
- Willoughby, T. L., Arnold, L., & Calkins, V. (1981). Personal characteristics and achievements of medical students from urban and nonurban areas. *Journal of Medical Education*, 56(9), 717-726.
- Woloschuk, W., & Tarrant, M. (2002). Does a rural educational experience influence students' likelihood of rural practice? Impact of student background and gender. *Medical Education*, 36(3), 241-247. Retrieved May 25, 2005, from <http://search.epnet.com/login.aspx?direct=true&db=aph&an=6290879>
- Woodend, A. K., Cooper, J., Buske, L., Marcus, L., Chauhan, T. S., Little, L., et al. (2004). Personal and community attributes factor in the decision to remain in a rural community. *Canadian Pharmaceutical Journal*, 137(10), 30-35. Retrieved February 1, 2008, from http://www.pharmacists.ca/content/cpjpdfs/dec_jan05/WoodendPracticeResearch.pdf
- Wright, B., & Woloschuk, W. (2008). Have rural background students been disadvantaged by the medical school admission process? *Medical Education*, 42(5), 476-479. Retrieved June 8, 2008, from <http://www.blackwell-synergy.com/action/showPdf?submitPDF=Full+Text+PDF+%2866+KB%29&doi=10.1111%2Fj.1365-2923.2007.02938.x>