An investigation into the motivations, influences and expectations of students studying optometry in Canada and the United States of America

by

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AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

Purpose: To investigate and compare the motivations, influences and expectations of Doctor of Optometry students studying in Canada and the United States of America.

Methods: A survey was created, piloted, and conducted through pen-and-paper and online methods. The questionnaire explored student demographics, motivations for choosing optometry as a career, motivations for choosing an optometry training institution, student exposure to optometry and the exposure's influence on choosing optometry as a career, and future expectations.

*Pilot Study***:** Students at the University of Waterloo in first and fourth year participated in a pen-and-paper survey in January of 2019. Students on campus were recruited following an in-class lecture and students on clerkship were e-mailed requesting their participation.

Main Study: Students enrolled in their first year at 11 participating Schools and Colleges of Optometry across Canada and the United States were recruited in January 2020, through local representatives, to participate in an online survey using the web application REDCap®.

Data were analyzed and descriptive statistics calculated using SPSS Statistics® 26.

Results:

Pilot Study: Eighty-eight percent of (77 out of 88) first-year students and 43% of (39 out of 91) fourth-year students chose to participate. Thirteen percent of the fourth-year students on clerkship chose to participate. The top three reasons for choosing optometry as a career for both first- and fourth-year students were *Good work/life balance* (First year=1st, Fourth year=1st), *Desire to help people* (First year=2nd, Fourth year=3rd), and *Interest in health science/ eye health* (First year=3rd, Fourth year=2nd). The top 3 reasons for choosing the University of Waterloo, School of Optometry and Vision Science were: *The optometry program is the only one available in my country taught in a language I am fluent in* (First year=1st, Fourth year=1st), *Program cost* (First year=2nd, Fourth year=2nd), *Location was close to home* (First year=3rd), and *Program Reputation* (Fourth year=3rd).

Main Study: Twenty nine percent (259 out of 901) of optometry students from participating Schools and Colleges of Optometry across North America chose to participate. Students in Canada (CAN) and the USA chose the *Desire to help people* (CAN=1st, USA=1st), *Good work/life balance* (CAN=3rd, USA=2nd), *Interest in eyes and vision* (USA=3rd), and *Interest in healthcare* (CAN=2nd) as their top motivators for choosing optometry as a career. Students in Canada and the USA differed regarding the top reasons for choosing their training institution. Students studying in Canada chose *The optometry program is the only one available in my country taught in a language I am fluent in* (CAN=1st), *Location was close to home* (CAN=2nd) and *Program cost* (CAN=3rd). Students studying in the USA chose *Program reputation, regardless of location* (USA=1st), *Location was close to home* (USA=2nd), and *Welcome day/Interview day* (USA= 3rd).

Conclusions: Students' motivations for choosing optometry and choosing the University of Waterloo did not differ between first- and fourth-year students at the University of Waterloo. Students studying in Canada and the USA had similar motivations for choosing a career in optometry but differed on motivations for choosing their training institution. Motivations for choosing a career in optometry included altruistic, intrinsic, and extrinsic factors. Students in both countries found the training institutions' proximity to the applicant's home important but differed on other deciding factors. This could be attributed to Canada having only two training institutions, one anglophone and one francophone, compared to 23 training institutions in the USA. Optometry training institutions will benefit from information on motivations and influences in recruiting candidates. Optometry associations and the public health sector will benefit from information regarding wages, hours, and modes of practice to forecast future trends in workforce planning and compensation.

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Dedication

This thesis is dedicated to my loving and supporting husband and family, and my International Optometry Bridging Program classmates, the most determined and dedicated group of optometrists I know.

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Chapter 1
Introduction

"*What do you want to be when you grow up*?" Everyone is asked this question at some point during their childhood and adolescence. Typically, a response is given that you want to be a doctor, a ballerina, a fireman, a teacher, etc. You grow a little older and experience more about life, and the decisions on your career become more involved. But what motivates us to choose the career path that we do?

Optometrists in Canada and the USA invest in at least seven years of post-secondary education, typically go into thousands of dollars of debt as students and, in some cases, hold off on other life commitments and ambitions to pursue this career. Why? And when making such a commitment, how do they choose where to train? Where are they going to spend their money, live their lives, study, and invest in their future? These decisions are particularly interesting to examine in Canada and the United States of America (USA) where the number of training institutions ranges from two to 23, respectively.

Knowing optometry students' motivations and expectations for choosing a career in optometry is important for academic educators, optometry associations, and the public health sector. The findings from such a study can illuminate future trends that will influence the scope of practice, demand for practice ownership, and economic expectations of graduates. Knowing optometry students' motivations and expectations of both their career and training institution can also help educators in the recruitment of quality students.

There is a lack of knowledge about optometry students' motivations and expectations, particularly in North America. Previous surveys conducted in other countries add value to the topic, but do not translate well to North American training programs.
This thesis reports on the development and application of a survey to gather information on optometry students' motivations and expectations for their training institution and a career in optometry.

Chapter 2
Literature Review

2.1 Optometry

Optometrists are recognized as primary eye care providers around the world. Though they may differ in scope of practice, optometrists examine patients' eyes to diagnose, manage, treat, and educate patients regarding eye and visual pathway conditions. They prescribe glasses, contact lenses, safety glasses, low vision instruments, as well as provide vision therapy and low vision rehabilitation. (1) Optometrists can recognize signs and symptoms of systemic diseases by indications found within the eyes, such as certain vasculature conditions, autoimmune disorders, endocrine disorders, and infectious diseases. They work closely with other health professions, including family physicians and ophthalmologists.

There are two main routes for training to become an optometrist in Canada which take a minimum of seven years to complete. A person can undertake a four-year Doctor of Optometry (OD) training program, in Ontario, after completing at least three years of an undergraduate degree, or enter a five-year OD program (the first year is a pre-optometry year), after two years of *Collège d'enseignement général et professionnel* (CEGEP), in Quebec. (2) Following the OD degree, and depending on the province of practice, students typically must complete an exam and provincial requirements to practice. (1)

The role of the optometrist in Canada and the United States has changed significantly in recent years. Optometry developed from the field of opticianry with a focus on physics, optics and the correction of refractive error, but has expanded, over time, to include medical care. (3) There have been significant changes to the equipment and technology used, leading to new clinical procedures and professional responsibilities. Each province and state have their own laws and regulations for optometric practice, which varies the scope of practice for optometrist in each jurisdiction. Most recently, the impact of the COVID-19/SARS-CoV-2 pandemic has affected the way optometrists work, including new personal protective

equipment, disinfection procedures and decreased face-to-face contact without compromising a patient's vision care. (4,5) There have also been changes to optometric practice through online retail, and the addition of refracting opticians in British Columbia and some areas are described has having reached a saturation point for the number of optometrists for the area population. (6) Amidst an ever-changing profession, it is hard to pinpoint the professional identity of optometrists, their motivations, their goals, and their future professional impact. It is essential to understand who the future optometrists are and what motivates them, as it affects the future eye health needs of the public in Canada, the United States of America and beyond.

2.1.1 Canadian vs American Optometry School Statistics and Demographics

Optometry education in Canada is unique compared to most other countries. Considering the vast geographical size of the country, it is unusual to have only two universities that offer a Doctor of Optometry program: the University of Waterloo (anglophone), and the Université de Montréal (francophone). Collectively, they enrol approximately 540 students over four years of study (not including the Université de Montréal pre-optometry year). (7) Both universities set a fixed admission number for their optometry programs and entrance for each position is highly competitive. As a result of these limitations, there has been an increasing trend of students choosing schools outside of Canada for their optometry training, most conveniently in the United States, where training schools offer similar instruction and training, and where the optometry degree obtained in each training institution is recognized by regulators in both countries. In the 2019-2020 academic year, 496 Canadian students were enrolled in optometry programs in the United States, 129 of which began their first year in 2019, this means there would have been nearly as many Canadians studying in the United States as in Canada. (8).

In comparison, the United States of America has 23 Schools and Colleges of Optometry, with approximately 7,244 full-time optometry students over four years of study. (8) The Schools and Colleges range greatly in class size, history, and classification (public or private). The

Illinois College of Optometry (ICO) is the oldest optometry school in the USA and was established in 1872, while the newest, the University of Pikeville, Kentucky College of Optometry (KYCO), was established in 2016. (9) Including KYCO, five American Colleges or Schools of Optometry have opened since 2009. (9) During this period, the USA training institutions have seen a plateau or decline in the applicant pool numbers for optometry students, but more students are enrolled overall due to the increase in the number of optometry programs. (9) This change in demand has opened national conversations on student entry qualification level and their potential for success in the optometry program and profession. The Association of Schools and Colleges of Optometry (ASCO) has dedicated resources to increase public awareness of optometry education and the value of becoming an optometrist in the hope of increasing the applicant pool, and therefore the expected student entry qualification level. (9) It would also be helpful for Schools and College's Admissions Boards to be aware of the motivating factors and future expectations that draw students into a career in Optometry in producing these public awareness materials.

2.2 Generations Y and Z

Along with the change in equipment and procedures, there have been generational and societal changes in the workforce. Generational research tends to be complex and contradictory. Those who research generational trends are often aware that there are limitations, as it is hard to compare people at different stages of life or over long periods. Some empirical research that accounted for age and time has shown some trends of behaviour and attitudes between generations. Currently, the workforce mainly consists of Baby Boomers (born between 1946-1964), Generation X (1965-1980), Generation Y or Millennials (1980-1995), and Generation Z (1996 and onwards). (10)(11)

As Generations Y and Z are now entering the workforce, trends relating to their values and expectations are of interest. Ng et al. (2010) reported that work-life balance, good pay and benefits, the prospect of rapid advancement, meaningful work experiences, and a nurturing work environment were all important to Generation Y. (11) They further found that

opportunities for advancement were the top priority amongst undergraduate students in a Canada-wide survey. (11) They also reported that having good colleagues and managers were important to their desire for rapid advancement, and a nurturing work environment. (11) Brown et al. (2015) found similar trends valuing work-life balance and flexibility within the workplace, while still expecting promotions and raises, and valuing a company that is honest and respectful. (10) Personality traits associated with Generation Y include a high level of confidence, self-esteem, and narcissistic behaviour. (10,12,13)

There is limited literature on Generation Z in the workforce since they are just entering the workforce. Wells et al. found Generation Z to be practical and driven. They are spiritual, but not necessarily religious, and, like Generation Y, they also find it important to find meaningful work with a company that has values that align with their own. (14) They find self-care important, valuing a balance of mental, physical, emotional, and spiritual health. (14) Gen Z has also been known to be anxious and cautious about the future and typically prefer to "play it safe," although they are highly entrepreneurial. (15)

The current optometry cohort is a mixture of both Generation Y and Generation Z and will most likely show characteristics from both generations. When considering generational trends, it is important to note that each generation member is their own entity and may not share views with other people in their generation. It is also crucial to differentiate between generational trends and societal shifts. For example, having two household incomes, more single-parent families, more women in the workplace, and advanced reproduction age are examples of current societal trends and may not reflect differences between generations. (13)

Though generational research can be complex, it is useful to know when recruiting applicants into academic programs and recruiting employees in a workplace. Many optometrists own their own business, so knowing that Generation Z graduates are entrepreneurial may be beneficial. Optometry schools might choose to use this information for curriculum design while professional organizations and practice owners could use this knowledge to assist those interested in selling their practices. Knowing that both generations value work-life balance

may lead to future optometrists choosing to work fewer hours; a decision that could impact the health needs of the public if demand for care exceeds supply.

Generational research is not consistent worldwide. Generations are impacted by significant life events, including wars, economic crises, and health crises, like a pandemic. Generations are categorized more regionally than worldwide. Canada and the United States are closely associated and categorize generations similarly.

2.3 Choosing a Career

Many factors contribute to career selection and success. These factors can include personality, beliefs, intelligence, motivations, childhood experiences, future goals, and lifestyle. (16)

It has been suggested that IQ does not correlate directly with success as much as motivation, ambition, and drive do. (17) Optometry student entrants arguably are intelligent, as they were accepted into a highly competitive professional degree. Still, their reasons for choosing optometry as a career and what they consider to be a successful career may differ from one another. Understanding more about their motivations and expectations may be a stronger guide to future success and job satisfaction as optometrist.

2.3.1 Personality traits

Identifying personality types is complicated by the number of personality tests available and their different methods of categorization. Personality is a product of a person's set of beliefs, values, attitudes, interests, feelings, and behaviours. (17) Personality tests can focus on a particular part of a personality and may be broad or specific in their focus.

Type theories focus on similarities within a group and are general, while *trait theories* focus on differences between people and are comprehensive, typically grading characteristics on a scale from high to low. There are also *behaviourist theories* that suggest current behaviours

are based on responses from the past, and *situational theories* that believe responses are more individual to the situation. (17)

Holland and other leaders in this research area, believe that people are attracted to certain careers and work environments that align with their personality. (18) Even within careers, such as medicine and pharmacy, there is a belief that personality can affect a person's chosen sub-specialty. (16,18) If personality and career do not align, dissatisfaction could ensue. (18)

Kwon and Park (2015) used a Five-factor Model that evaluated Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to investigate patterns in personality and medical students' specialty choice. (16) They found that people with more Agreeableness (trust, altruism, cooperation, and sympathy) were more likely to choose clinical medicine over basic medicine. (16) They felt this trait was suitable as clinical staff need to be empathetic and cooperative working closely with their patients and other staff. Internists emphasized Conscientiousness (being organized, careful behaviour, persistent and achievement-oriented), but de-emphasized Extraversion (sociability, active, dominant, and positive emotions). (16)

Cordina et al. (2012) used The Gordon Personal Profile Inventory and found that pharmacists practising in specific sub-specialties have differing personalities. (18) Pharmacists in importation and wholesale were assertive, independent, and sociable, while community pharmacists were trusting, patient, and understanding. (18)

Ball et al. (2015) researched the personality traits of dietitians using the Temperament and Character Inventory (TCI), which categorizes people by temperament traits of; novelty seeking, harm avoiding, reward dependence and persistence, and character traits of; self-directedness, cooperativeness, and self-transcendence. (19) They found dietitians had high levels of harm avoidance, reward dependence, and persistence in temperament traits, and high levels of self-directedness, and cooperativeness in character traits. The authors felt this trait profile resembled that of other health professionals but posited that dieticians' high level

of persistence and harm avoidance might make them overly cautious and prone to perfectionism. (19)

Some members of the dietitian study (19) also participated in Eley et al.'s (2012) examination of personality traits among nurses and nursing students, comparing these findings to their reasons for choosing a nursing career. (20) Similar to the study of dietitians, temperament traits of reward dependence and persistence, and character traits of self-directness and cooperativeness, were high. They argued that reward dependence (the need to please others) matched the nurses' reasons for choosing nursing as a career as a way to help others. (20)

Several studies by Kegel-Flom (1976, 1984, 1992) investigated the personality traits of optometrists using the California Psychological Inventory (CPI). (21-23) She compared personality traits of academy fellows and high-income optometrists with the general population of optometrists. She also examined personality traits of optometry school applicants and enrolled students and examined correlations with success in the program. She concluded that personality traits of achievement drive, self-confidence and tolerance in men and self-confidence, assertiveness and inter-personal effectiveness in women were associated with success in clinical practice. (21)

These examples of personality test studies of health professionals' range in the application, time commitment, categorization, and outcome. Only one of the above studies, Eley et al., connected personality with career choice, and this was done as a mixed-method study using personality tests and focus groups on a small sample size of 21 people. (20) Other studies focused on just the personality tests or the motivations for choosing their careers.

It was decided that this study would not employ personality tests, but would rather only focus on personal motivations, attitudes, and expectations due to time constraints.

2.3.2 Intrinsic, extrinsic, and achievement-based motivations

Intrinsic and *extrinsic* are terms that have been used frequently to describe and classify people's motivations. Surprisingly, these terms are often used, though rarely defined, and when they are defined, contradictions exist across studies and theories. Locke and Schattke (2018) suggested an updated version of motivation classifications. (24) They classified three forms of motivation: intrinsic, achievement and extrinsic.

- *Intrinsic motivation* is defined as the pleasure from doing an activity. Simply put, it is *liking what you do.*
- *Achievement motivation* is the idea of doing an activity to improve, challenge oneself or succeed at that activity. It is the idea of *wanting to do well*.
- *Extrinsic motivation* is doing something as a means to an end. The motivation is to *do the activity now for a future benefit*. (24)

Altruism or selflessness is another term that is frequently discussed when considering motivations and has been suggested to have a close relationship with intrinsic motivators. (25,26)

Realistically, many motivators can fit under more than one category, and many motivators can contribute to choosing a career.

2.3.3 Career Motivations: Health professional and Optometry-based studies

Very little is known about why optometry students choose optometry and why they choose their specific university of study. Optometry students' motivations have been researched on only a few occasions, while in other professions, such as nursing, pharmacy, medicine, and dentistry, investigating student motivations is a common practice. (25-30)

Wu et al. (2015) conducted a literature review on health professionals' motivations for career choice. (26) They found 29 relevant journal articles related to nursing, dentistry, medicine,

and pharmacy. They discovered four themes when considering motivations: intrinsic factors, extrinsic factors, socio-demographic factors, and inter-personal factors. Altruistic motivation, such as the desire to help others, was consistently a top motivator, especially within the nursing profession. This was consistent with Gąsiorowski et al.'s 2014 study of Polish medical students which compared students' motivations in their first year to their sixth year of medical school. Within their first year, students ranked the desire to help others as their top motivator, followed by an interest in medical issues, a profession with high social prestige, and then a desire to obtain a well-paid profession. During their sixth-year, results were similar although interest in health issues became the top motivator and desire to help others was dropped to second. (27) Lordly and Dubé (2012) investigated Dietetic students' motivations and found that interest in the subject matter (interest in nutrition and interest in health) were top motivators followed by the desire to help others.

Other research found that lifestyle played a role in students' motivations to choose their careers. Tanalp et al. (2011) found reputation and lifestyle to the top motivators for Turkish dental students' when entering dentistry. (30) Working independently, being their own boss, and interest in the medical branch were also top motivators. Du Toit et al. (2013) conducted a large-scale survey on dental students across 13 countries and found that the number one motivation for choosing dentistry as a career was "Dentists have enough time off for family life" followed by "I want to be a dentist who helps poor or under-privileged people." (25)

Other studies did not rank or rate motivations, but instead found trends within students and professionals of the occupation. Willis et al. (2009) conducted small group interviews and focus groups to understand motivations for a career in Pharmacy. (29) They found motivations were typically a combination of many factors including, societal status and social approval, job security, scientific career, refused their first-choice career, challenging career, flexible career, family approval or occupational inheritance, rewarding, financial, and working autonomy. (29)

Three studies have reported the motivations of optometry students between 2011 and 2015. Mashige and Oduntan surveyed optometry students from South Africa. (31) Osuagwu et al. surveyed optometry students' motivations in Saudi Arabia. (32) Boadi-Kusi et al. surveyed optometry students in Ghana. (33) All three studies used a variation of the same questionnaire and showed that the desire to help others was consistently one of the top two motivators. Two other significant motivators were prestige and job availability. (31-33)

There appears to be only one study investigating optometry students' motivations in North America. In 1977, Haffner and Soroka found that "humanitarian service, independence, financial security, and public service" were key motivators. (34)

2.4 Choosing a University

2.4.1 University Motivations: General

Students motivated to pursue specific training (e.g. optometry) must decide where to complete that training. Students are becoming increasingly invested in choosing their university. (35) With the ability to research universities online, the ease of studying abroad, and the numerous programs and systems available for ranking universities, university recruitment is becoming more competitive. (36) Universities are starting to market their education as a brand and treat students as consumers in educational marketing. (35)There is a vast literature identifying students' processes for choosing a university, much of it involving the influence of academic fees, university image and reputation, and facilities. There are a few articles that focus on rating or ranking the factors involved when students choose a university. Most of the research is specific to prospective undergraduate students leaving high school. Drewes and Michael (2006) investigated university preferences using microdata on university applications in Ontario and found that students preferred locations close to home, and universities that devote money to scholarships and teaching. Students felt discouraged from applying to universities with a high-level research profile. (37) A study by Briggs (2006) completed in Scotland, focused on the increase in tuition fees and whether that

affected students' choice of universities. (35) The study focused on students entering accounting and engineering programs at six universities across Scotland. Briggs found that academic reputation, distance from home and location were the top factors (35). They did not specify whether closeness to home or farness from home was preferred, though Briggs recognized that most universities in Scotland market locally. The cost of the program along university amenities and program flexibility were not deemed as important. (35)

Two studies used conjoint analysis to rank and rate student choices regarding university. Soutar and Turner (2002), categorized prospective university students as international students, mature students, or most typically "high-school leavers." (36) When investigating Australian high-school leavers, Soutar and Turner found that course suitability, academic reputation, job prospects, and teaching quality topped the factors, though they recognized that the highest and lowest ranking factors were still very close in level of importance, suggesting that many factors go into choosing a university and that the selection process is complicated. (36) More recently, Dunnett et al. (2012) conducted another conjoint analysis of English undergraduate applicants. (38) As with Briggs' Scotland study, Dunnett et al. focused on the impact of higher tuition fees and institution choice. They also concluded that course and university reputation were the most important factors, even when considering an increase in tuition fee level. (38)

These findings suggest that program and university reputation as well as location are important factors considered by prospective undergraduate students when choosing a university.

2.4.2 University Motivations: Optometry-based studies

The three optometry studies (31-33) of student motivations and influences for choosing their university found that proximity to home was one of the top three reasons for students choosing their institution. Cost, bursaries, personal preference, and "always intending to go there" were other contributing factors. (31-33) The influence of parents and relatives was an important factor for South African students and Saudi Arabian students but was considered

insignificant for Ghanaian students. Less important factors were the opinion of friends', media sources, and induction days. (31-33)

2.5 Surveys

Surveys are used as a way of obtaining specific information and opinions from large populations who may be widely distributed and are therefore a logical tool for acquiring perception data among students across multiple institutions. They are used in research, politics, customer service and health. (39,40) They can be administered by telephone, mail, or electronically via online surveys or text messaging. Survey design is important as each question needs to be interpreted in the same way by all participants and the surveyor. There are typically no options for participants to explain their responses, thus all the information needs to be obtained directly from the question and provided answers, or the validity of the response could be compromised. Survey design needs to be brief, relevant, unambiguous, specific, and objective (BRUSO). (41) It is important to avoid double-barreled questions, double-negatives, leading questions, jargon, abbreviations, and complex language. (39-43)

2.5.1 Online surveys

Online or e-surveys are becoming increasingly popular. They allow for a large quantity of data to be collected quickly from a large geographical distribution. They are self-administered, though the surveyor can still control whether all questions need to be answered and who receives contingency questions. (43,44) There are limitations to online surveys including, bias, relatively lower response rates, operating system compatibility, and data security. (39,43,44)

2.5.2 Bias

Tait and Voepel-Lewis (2015) and Sue and Ritter (2007) identify bias types that a surveyor should consider when creating a survey and interpreting its findings. (41,43) Bias can be seen in all forms of surveys. *Self-selection bias* arises from the responder actively seeking out surveys of interest. *Non-representation bias* arises from not representing certain populations.

For example, some populations lack computer access or have poor internet speed, creating an obstacle to completing an online survey. Another is *social desirability bias*, where respondents answer the questions according to what they think the surveyor wants or in a way that makes them look better, though this can be decreased by reminding respondents that answers are anonymous and confidential. *Recall bias* occurs when questions are asked about a previous event that the participant may not remember correctly. *Non-response bias* is the idea that non-respondents may differ from respondents. This bias is decreased with higher response rates. (41)

2.5.3 Response rate

Online surveys typically have lower response rates compared to other forms of surveys. Nulty (2008) compared studies that investigated response rates of paper-based and online surveys and found that response rates were 23% lower in the online form, which had an average response rate of 33%. (45) Nulty found that sending reminders to non-respondents, sending reminders to the survey owners, and having survey incentives helped improve response rates. (45)

2.5.4 Reliability and Validity

For the integrity of the research, the survey needs to be both reliable and valid; Burns et al. (2008) and Tait and Voepel-Lewis (2015) proficiently describe both. (41,42)

Reliability consists of test-retest reliability, inter-rater reliability, and internal consistency. *Test-retest reliability* exists when the same sample is tested multiple times to see if their responses are the same. *Inter-rater/inter-observer reliability* occurs when respondents answer similarly to one another when expected. *Internal consistency* requires correlated questions within the survey to provide consistent answers. (41,42)

Validity consists of face validity, content validity, construct validity, and criterion validity. *Face validity* exists when the survey content appears aligned with its goal. *Content validity* involves experts evaluating whether the questionnaire evaluates all facets of what it seeks to

measure. *Construct validity* considers how accurately the questions relate to a theoretical concept. *Criterion validity* involve comparing the responses to a "gold standard." (41,42)

Chapter 3
Aims and Objectives

3.1 Aim:

The purpose of this thesis was to examine motivations, influences, and expectations of optometry students in Canada and the United States of America regarding their choices of profession and school. The aim was to compare and identify patterns among optometry students and their perceptions of a career in optometry.

3.2 Objectives:

i. To develop a suitable universal questionnaire and implement both online and pen-and-paper methods.
ii. To assess and compare the attitudes towards optometry of first- and fourth-year optometry students at the University of Waterloo, including career motivations, university motivations, exposure in the field and its influence, and future expectations.
iii. To assess and compare the attitudes towards optometry of Canadian and American first-year optometry students, including career motivations, university motivations, exposure in the field and its influence, and future expectations.
    a. To assess the importance of location and cost of school as motivators when choosing a university.
    b. To assess and compare the financial circumstances of students studying in Canada and the United States of America.

Chapter 4
Methods

4.1 Background

To meet the objectives of the project, a biphasic approach was adopted that incorporated a pilot study and the main study. The pilot study was conducted at the University of Waterloo only, while the main study was conducted at numerous optometry schools in Canada and the United States of America.

The pilot study at the University of Waterloo allowed the researcher to gather useful information relevant to the University of Waterloo Doctor of Optometry program and trial the questionnaire wording. This survey was delivered by a pen-and-paper method to both first- and fourth-year students. Following the pilot study, an updated version of the questionnaire was developed for first-year optometry students in Canada and the United States that was delivered using an online survey platform. The response rate was expected to be lower when the survey was conducted internationally online (compared to pen-and-paper at the researcher's own institution), although a broader geographical distribution of students, with different educational experiences and socio-economic backgrounds, would be gained. Before creating the questionnaire, the thesis committee, composed of four optometry faculty and researchers and one student, gathered to discuss possible questions of interest to the School of Optometry and Vision Science at the University of Waterloo. Though this initial brainstorming session focused on the University of Waterloo, the aim was to create a questionnaire that could be used in Canada and the USA and be adaptable for other optometry programs across the world. The committee produced numerous possible questions that were then edited and condensed to address the specific study topics. Five key categories of interest were identified: demographics, career motivations, university motivations, exposure to the optometry field, and expectations for their future career. Although other

topics could have given further useful information, it was essential to keep the survey condensed to reduce student survey drop-out, ensuring an adequate response rate.
The questionnaire template drew from designs used in three previous surveys: (i) Mashige and Oduntan 2011; (ii) Joshi et al. Canadian Association of Optometry Students 2018 survey, and (iii) Fletcher's 2010 BSc dissertation, *Why Optometry?,* which was a continuation of Tannorella's 2007 BSc dissertation, both from Cardiff University. (31,46-48)

4.2 Pilot Study

4.2.1 Survey development

Specific areas of interest for the survey were identified in three main ways:

(i) Previous study methods
(ii) Working group of faculty and students within the University of Waterloo School of Optometry and Vision Science
(iii) Literature review of similar surveys for other health profession students.

Based on these sources, a draft questionnaire was developed. The questionnaire was then tested on four optometry graduate students for question clarity and to assess the time it would take to complete the questionnaire. Using these iterative processes, and with review by the principal investigator (BS) along with two faculty members (SK, PM), the questionnaire was amended through five versions before the final version for the pilot study was approved. Important foci during the editing process were clarity of the question, ensuring adequate options for answers, and relevancy of questions to the main purpose. Questions regarding the student's motivation to choose optometry as a career were asked in both open and closed question format to ensure that all student' responses to these questions would be represented. Questions regarding personality traits were not included as these would add significant length to the questionnaire to be meaningful, and there was concern that this it would decrease the response rate. The focus was on motivations for choosing a career and not on personality

traits, even though both can influence career choice. The final pilot study survey can be found in **Appendix A**.

4.2.2 Subject Choice

First- and fourth-year students were chosen to compare the differences specifically in career expectations at the beginning versus the end of the four-year optometry program. There are normally 90 students per year, giving a potential sample of approximately 180 responses.

4.2.3 Survey Delivery

Students participated in the survey between January and March of 2019. For first-year students, it was decided that they would be asked to participate using a pen-and-paper questionnaire at the end of one of their morning lectures. It was hoped that this would produce the highest response rate. A verbal script was read out to students (**Appendix A**), and those students who were interested in participating were asked to remain at the end of the lecture to complete the questionnaire. Students handed the questionnaire back to the principal investigator (BS) before leaving the lecture theatre. Some students had prior lunch commitments and were not able to participate.

Recruitment of fourth-year students was a greater challenge because two-thirds of the students were on clerkships across North America and not present at the University of Waterloo. For the one-third of the students present at the university, recruitment followed a similar approach to the first years – recruitment through an announcement at the end of a lecture. Students that were not on campus were recruited through a mass e-mail. Sending a broad e-mail inviting all 4^{th} years to participate rather than contacting each student individually and pre-emptively sending them a survey, met the university standards for student confidentiality. For students interested in participating, a paper copy of the questionnaire was mailed to them. It was decided to mail the questionnaire, instead of using e-mail or switching to an online survey, so that all students would answer through the same method. Pre-paid envelopes were included with which to return the questionnaire; regardless,

fewer students chose to participate in this way than in the classroom, possibly due to the extra effort of completing and returning the questionnaire.

4.2.4 Data Processing

All the questionnaires were collected and kept in a secure location. Mailed responses were collected and pooled with the other questionnaires by an impartial third party to maintain confidentiality and anonymity. Any information with a student's address that could allow subject identification was destroyed. Students were given approximately two months to respond to permit sufficient time for remotely located fourth-year students to obtain, complete and return the questionnaire. As per the REDCap® platform:

> Study data were collected and managed using RedCap® (©2020 Vanderbilt University, Nashville, Tennessee, US), electronic data capture tools hosted at The University of Waterloo. (49,50) RedCap (Research Electronic Data Capture) is a secure, web-based software platform designed to support data capture for research studies, providing 1) an intuitive interface for validated data capture; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages, and 4) procedures for data integration and interoperability with external sources. (51)

To allow data analysis, the responses from each paper questionnaire were entered into an electronic version of the survey, with data entry double-checked by the researcher and another party (BS, SW) to confirm that responses were copied correctly. Upon completion of data transfer, random spot checks of the data were done to verify accuracy. Once the questionnaires were entered, they were scanned and stored on a password-protected computer. The originals will be destroyed upon conclusion of the study analysis.

Questionnaire response data were analyzed using SPSS Statistics 26 (©IBM Corporation and other(s) 1989, 2019, Armonk, New York, US). Descriptive Statistics, including percentages and frequencies, were calculated and graphed. Chi-Square and Fisher's Exact tests were used

to find associations between the first- and fourth-year student responses regarding first-choice career and first-choice training institution but were not used for questions relating to exposure and its influence or expectations. A significant association was determined if $p<0.05$.

4.2.5 Ethics Approval

Ethics approval for the pilot study was granted by the University of Waterloo, Research Ethics Committee in November 2018 (ORE#40089), per the Declaration of Helsinki, before the initiation of the survey in January 2019.

Informed consent was inferred by the completion and return of the questionnaire, and this inference was clearly stated on the information page of the survey and mentioned in the instructions. The principal researcher (BS) completed all data collection. All responses were anonymous and confidential. Data were stored on the Redcap® database, to which only the principal researcher (BS) had access.

4.3 Main Study

4.3.1 Survey development

Following the pilot study, and in preparation for the main study, the questionnaire was amended in the following ways:

(i) Amendments in relation to pilot study findings
(ii) Multi-national modifications to currency, job options and education differences
(iii) Bilingual accessibility: English and French versions

In the pilot survey, two questions were specifically presented as open questions to investigate what responses optometry students felt were necessary, as some of the items have not been previously asked of optometry students. One of these questions was, *"Why did you decide to choose Optometry as a career? (Please provide one reason)."* Three committee members

(BS, PM, SK) reviewed responses from this question, separately, to form themes that had been previously missed and were incorporated into a closed ranking question for the main study. The revised question was as follows: "*Which of these reasons contributed to your decision to be an optometrist? Choose the 5 most relevant and rank them in order of importance, 1 being most important and 5 being least important.*"

Another open question from the pilot study was whether the students felt their hours would change throughout their careers and why these changes would arise. The researchers were interested in the students' expectation of "work-life balance." As far as the researcher was aware, this had not been previously studied regarding optometry students. Students were asked, *"Please provide one example of a situation that would change your hours."* As with the question above, three committee members reviewed the responses separately to form themes, and these themes were incorporated into a new question in the main study. The new question was, *"Do you believe your hours will change throughout the first 10 years of your career? Check each option that pertains to you and mark whether this will make your hours increase or decrease."*

Most questions retained an *"Other"* option for students who felt their ideal response was not incorporated, and they could fill in their own choice.

The next set of amendments were made to allow the questionnaire to be internationally accessible. Questions regarding finances were written in American and Canadian currencies. Currency conversions were adjusted to November 2019, the time of ethics approval and a couple of weeks before releasing the survey. Other differences between optometry in Canada and the USA are the various job opportunities available to optometrists following their degree. Most Canadian optometrists work in primary care with limited options in other settings. In the USA, there are more options to work in hospitals, Veterans Affairs hospitals, military, and opportunities to perform minor eye surgical procedures that are not yet allowed for optometrists in Canada. It was essential to ensure that these options were available on the questionnaire for students studying in the USA.

Even within Canada, considerations of different education systems and languages had to be recognized. In Canada, the two optometry schools are in Ontario and Quebec, and the educational system in these two provinces are not the same. The local correspondent at the Université de Montréal assisted by reviewing the questionnaire for differences in student education to allow options that related to both provinces. For example, students in Quebec have a "pre-university" program called *Collège d'enseignement general et professional* (CEGEP) that lasts one to three years before entering the five-year Doctor of Optometry program. The first of these five years is a more generalized health education year, with optometry specific courses taught in the second year. In Ontario, students must complete at least three years of an undergraduate course before entering a four-year Doctor of Optometry program.

Three University of Waterloo optometry students reviewed the changes in September of 2019 to ensure that questions were accurately portrayed at that time.

Lastly, changes were made to allow the questionnaire to be bilingual. The questionnaire was translated into French and reviewed by the Université de Montréal local correspondent (EB) to ensure a similar question context to the English version. There were several discussions between the researcher (BS) and the local correspondent to ensure context translated adequately between the two languages. Promotional materials were also translated by a professional translation service and reviewed by the local correspondent and researcher. The final questionnaire used in the main study, written in both English and French, can be found in **Appendix B.**

4.3.2 Subject choice

All university Deans or school representatives involved in the Association of Schools and Colleges of Optometry (ASCO) were e-mailed twice during the summer of 2019 to invite their first-year optometry students to participate in the survey. E-mailing the Deans associated with ASCO was thought to be the best way to access all the optometry programs

across the USA and Canada efficiently and without bias. Eleven universities initially responded; one university dropped out due to ethics approval requirements, but another university enrolled at a later date.

The participating schools were:

1. *Ferris State University, Michigan College of Optometry*
2. *Marshall B. Ketchum University, Southern California College of Optometry*
3. *Southern College of Optometry*
4. *The Ohio State University, College of Optometry*
5. *Illinois College of Optometry*
6. *University of California Berkeley, School of Optometry*
7. *University of Houston, College of Optometry*
8. *University of Missouri-Saint Louis, College of Optometry*
9. *Université de Montréal, École d'Optométrie*
10. *University of Pikeville, Kentucky College of Optometry*
11. *University of Waterloo, School of Optometry and Vision Science*

Only first-year students were asked to participate, to limit possible recall bias of other years. The objective was to understand student responses before students had increased exposure to the field.

4.3.3 Survey delivery

It was decided that the best format for this survey was an online questionnaire. An online method was the most financially feasible way to survey a broad range of students across a large geographical area. An updated version of the questionnaire was developed in RedCap® (©2020 Vanderbilt University, Nashville, Tennessee, US). Optometry students who agreed to complete the questionnaire used a website hyperlink for access, which was sent to all first-

year optometry students from participating universities. Students were given approximately one-month (spread across January and February 2020) to participate.

Since the questionnaire was conducted online, it was crucial to encourage student participation, as online surveys generally have lower response rates. To increase student participation, steps were taken to make a personal connection with the students. Promotional e-mails incorporated the principal researcher's picture. The principal researcher also created a video that local champions could play to their students to introduce the researcher and make a personal connection. The promotional materials used can be found in **Appendix C**. Students were also able to participate in a raffle, which allowed them an opportunity to win one of five $50 Amazon gift cards.

Recruitment e-mails were sent out twice, once midway through January and another at the end of January, to remind students of the project without overwhelming them with e-mails. Posters were also given to local correspondents to increase student's exposure to the project.

To encourage local correspondents to recruit their students, each school was promised a report on its results. Local correspondents were also e-mailed throughout the survey period with updates on their student's response rates. First year school enrollment ranged from 38 to 136 students per school, with a potential total of 901 student responses.

4.3.4 Data processing

Questionnaires were completed, and data collected and stored, using RedCap® (©2020 Vanderbilt University, Nashville, Tennessee, US)**.** Data were analyzed using SPSS Statistics 26 (©IBM Corporation and other(s) 1989, 2019 Armonk, New York, US). Descriptive statistics, including counts, means and frequencies, were determined. Chi-square tests were used to measure association between students in each country. An association was considered significant if $p<0.05$.

4.3.5 Ethics approval

Research ethics approval, adhering to the tenets of the Declaration of Helsinki, was gained through the University of Waterloo for the main study in November 2019 (ORE# 41402). To obtain ethics clearance, each participating university in Canada and the USA was asked to provide evidence of support from their institution's ethics review board for participation. To assist with this process, each local champion was sent a summary of the project to forward to their ethics board. Individual Ethics Review Boards were contacted directly, approximately one month later, if no response had been obtained. A summary was professionally translated into French for the Université de Montréal and reviewed by their local correspondent before being submitted to their research ethics board.

Two institutions needed formal ethics applications to be approved to participate; for this reason, one of the institutions dropped out due to the time and effort required to participate. The Université de Montréal obtained approval (#CERC-19-101-D) from its ethics review board in January 2020 following the approval at the University of Waterloo. Students at the Université de Montréal were not contacted until both review boards had cleared ethics.

The remaining review boards either approved conditionally with simple requests, for example, that students be reminded that the survey is voluntary, or agreed with no requirements, citing no need for ethics approval because no data was being analyzed by their university staff or on their university premises. Contacting each review board and ensuring their authorization took several months.

Informed consent was obtained at the beginning of each online questionnaire. One participant did not consent and was immediately exited from the survey and thanked for their time. All data were collected and stored using RedCap®, with only the principal researcher (BS) having password-protected access. All responses were anonymous and confidential. Participants could volunteer their e-mail addresses for use in the raffle. E-mail addresses were not connected to individual surveys and, thus, results remained anonymous.

Chapter 5
Results

5.1 Pilot Study

In view of the extent of data collected, not all the data from the pilot survey is presented in this chapter. In particular, the data regarding what age students chose to become optometrists, what they believe an optometrist's most important role is, areas of study that interest them, the number of offers of admissions they received, and future career expectations such as the number of practices that expect to work at, province and community size they wish to practice in, and questions regarding practice and optical dispensary ownership were excluded, but are reported on in **Appendix D**. Percentages presented in this work are *Valid percentages* unless stated otherwise, meaning that they are calculated based on the number of students who responded to the question, not the number of students who participated in the survey.

5.1.1 Response Rate

Seventy-eight out of 88 first-year students participated, with one questionnaire eliminated due to unreliable data due to inappropriate answers, resulting in a response rate of 87.5%. Thirty nine out of 91 (42.8% response rate) fourth-year students participated. Of the sixty fourth-year students working off-campus, only eight (13.3%) students responded, showing that the bulk of the fourth-year responses came from students on-campus. The response rate was defined as the number of students who completed or partially completed the questionnaire, divided by the number of students within the first-year optometry class and fourth-year optometry class respectively at the University of Waterloo.

5.1.2 Demographics

5.1.2.1 Gender

Students were asked how they identify in terms of gender. Female-identified students outnumbered male-identified students by a ratio of approximately 3:1 (Table 5-1). This was consistent for both first- and fourth-year students. No students chose the questionnaire options: *Transgender, Other* or *Preferred not to disclose*.

Table 5-1: Gender identified by first- and fourth-year optometry students.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Gender	Male	21	27.3%	10	25.6%
	Female	56	72.7%	29	74.4%
	Transgender	0	0.0%	0	0.0%
	Prefer not to disclose	0	0.0%	0	0.0%
	Other	0	0.0%	0	0.0%

5.1.2.2 Age

Students were asked to specify their age range from a list of four options. The majority of first-year students selected the *20-22 year-old* age bracket, while the majority of the fourth-year students selected the *23-25 year-old* option. There were no students 29 years old or older. A full summary of ages can be seen in Table 5-2. Students were asked their current age, not the age at which they began their degree, so it was expected that fourth-year students were older which was confirmed using chi-square testing ($p<0.05$) (Table 5-3).

Table 5-2 First- and fourth-year optometry students age when completing the survey.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Current Age	20-22 years old	51	66.2%	0	0.0%
	23-25 years old	24	31.2%	24	61.5%
	26-28 years old	2	2.6%	15	38.5%
	29+ years old	0	0.0%	0	0.0%

Table 5-3 Chi Square testing reveals a significant association between student year and age.

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	54.322[a]	2	<.001
Likelihood Ratio	69.272	2	<.001
Linear-by-Linear Association	53.474	1	<.001
N of Valid Cases	116		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.72.

5.1.2.3 Primary Language

All but five participating first- and fourth-year students spoke *English* as a primary language (Table 5-4). Three students gave their primary language as Arabic, Albanian, and Punjabi, and two students equated *English* with another language (Polish and Cantonese) as their Primary Language.

Table 5-4 The primary language of first- and fourth-year students

		Primary Language					
		English		French		Other	
		Count	%	Count	%	Count	%
Program Year	First Year	73	94.8%	0	0.0%	4	5.2%
	Fourth Year	38	97.4%	0	0.0%	1	2.6%
	Total	111	95.7%	0	0.0%	5	4.3%

5.1.2.4 Home address

Student home province at the time of the application was distributed across Canada; however, the majority were from *Ontario* (69.0%). The next most common home provinces were *Alberta* with 8.6%, and *British Columbia* with 6.0% (Figure 5-1). No students came from Quebec or the Canadian territories. Three students (2.6%) identified their home as outside Canada: USA, Trinidad and Tobago, and Thailand. A count of first- and fourth-year students' home addresses, along with home community size, can be found in **Appendix D**.

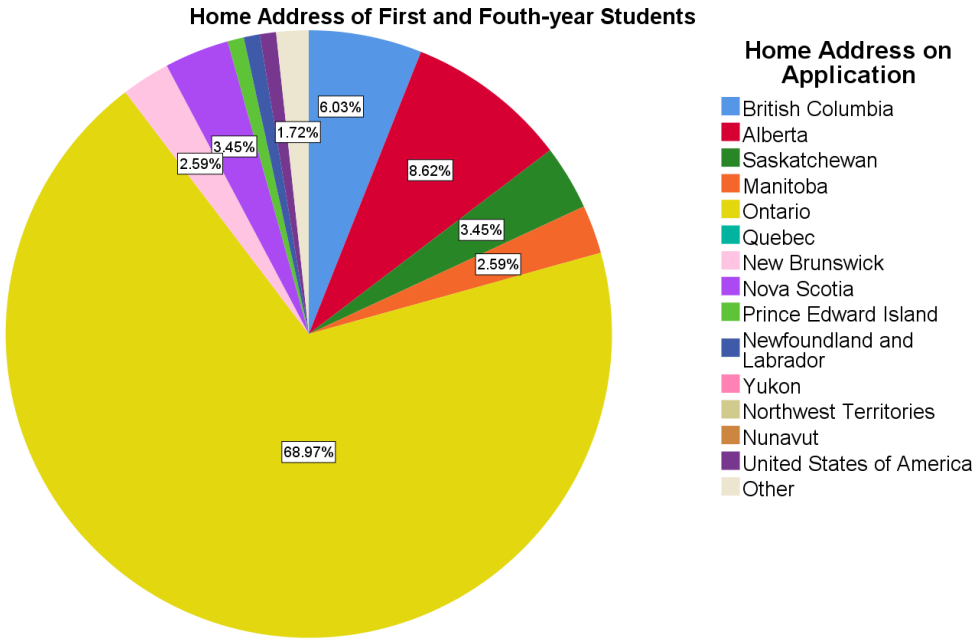

Figure 5-1 A graphic depiction of the percentage of students from each province when applying for the optometry program.

5.1.3 Career motivations

Students were then asked about their career motivations. Initially, they were asked whether optometry was their first-choice career. As seen in Figure 5-2, 86.2% of the respondents said that optometry was their first choice of career, whereas 13.8% said it was not. Of those students who reported that it was not their first-choice, Medicine, Dentistry, "Medical laboratory science/ Pharmacy", "Teaching", Chiropractic and "Chemist/ Professor" were given as the first-choice careers. After conducting a crosstabulation and chi-square test (Tables 5-5 and 5-6), a significant association between first- and fourth-year students' responses was found regarding the proportion of students who said optometry was their first-choice career. Students in first year were more likely (90.9%) than students in fourth year (76.9%) to say that optometry was their first-choice career.

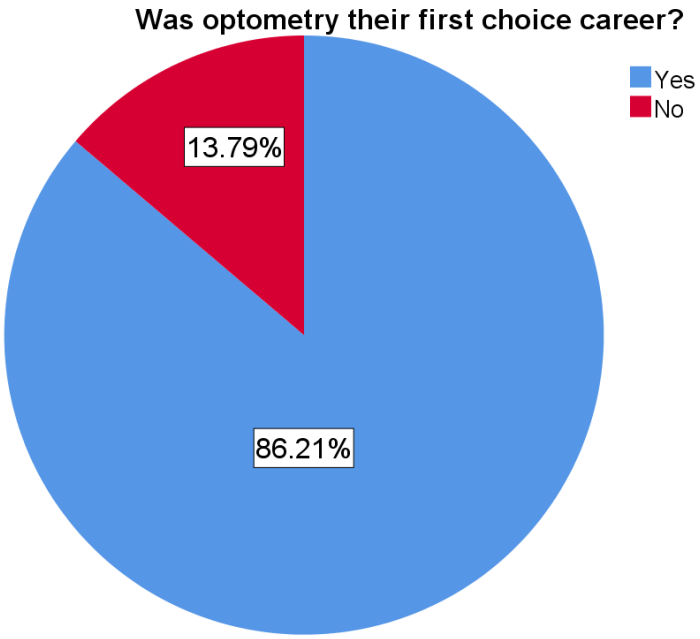

Figure 5-2 A graphical representation of the percent students who did and did not choose optometry as a first-choice career.

Table 5-5 Crosstabulation of students in first and fourth year who chose optometry as their first-choice career. Highlighted are the percentage of students who agreed and disagreed that optometry was their first-choice career, separated by program year. Expected count refers to the predicted frequency of that response and is calculated by the total row count multiplied by the total column count divided by total observed count. For example, the expected count for first year students who said *Yes* was calculated by: (77*100)/116= 66.4

Was optometry their first-choice career * Program Year Crosstabulation

			Program Year		
			First Year	Fourth Year	Total
Was optometry their first-choice career	Yes	Count	70	30	100
		Expected Count	66.4	33.6	100.0
		% within Was optometry their first-choice career	70.0%	30.0%	100.0%
		% within Program Year	90.9%	76.9%	86.2%
		% of Total	60.3%	25.9%	86.2%
	No	Count	7	9	16
		Expected Count	10.6	5.4	16.0
		% within Was optometry their first-choice career	43.8%	56.3%	100.0%
		% within Program Year	9.1%	23.1%	13.8%
		% of Total	6.0%	7.8%	13.8%
Total		Count	77	39	116
		Expected Count	77.0	39.0	116.0
		% within Was optometry their first-choice career	66.4%	33.6%	100.0%
		% within Program Year	100.0%	100.0%	100.0%
		% of Total	66.4%	33.6%	100.0%

Table 5-6 Chi-square testing showed a significant association between optometry as a first-choice career and program year. First-year students were more inclined to agree that optometry was their first choice compared to fourth-year students.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.259[a]	1	.039		
Continuity Correction[b]	3.164	1	.075		
Likelihood Ratio	4.026	1	.045		
Fisher's Exact Test				.049	.040
Linear-by-Linear Association	4.222	1	.040		
N of Valid Cases	116				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.38.

b. Computed only for a 2x2 table

Students were then asked to rank their top five reasons for choosing optometry as a career. Students could choose less than five options if five options did not apply to them, but no two options could be equally ranked. Each option that a student chose was weighted to give a ranked score from "most important" with a score of five, through to "least important" getting a score of one. The total score for all options was summed, and the percentage value for each option was then calculated to reflect the proportion of each selected option (Table 5-7).

Based on this calculation, the top five reasons for students in both years were: *Good Work/Life Balance, Desire to Help People, Interest in Health Science/ Eye Health, Job Availability/ Job Security*, and *Pay and Benefits.* Students in both first and fourth year chose *Good Work/Life Balance* (Sum %, first year=22%, fourth year=22%) as their top reason. They differed, however, in the order of importance of the other four most important reasons. The total count for each response is given in **Appendix D**. *Other* responses included: "Outreach availability", "Interest in optics", "Family in business," and "Social aspect of working".

Table 5-7 Table of the total count and valid percentage of students who chose each response as one of their top five reasons for choosing optometry. Valid percentage is calculated by the number of people who chose the response divided by the number of people who responded to the question. It also shows the sum of the weighted responses and how much each response reflects the total sum for first- and fourth-year students (Sum %). The top five reasons are highlighted.

	Program Year							
	First Year				Fourth Year			
	Total				Total			
	Count	%	Sum	Sum %	Count	%	Sum	Sum %
Good Work/Life Balance	68	88.3%	242	22.0%	34	87.2%	125	22%
Desire to Help People	62	80.5%	219	19.9%	28	71.8%	96	17%
Interest in Health Science/ Eye Health	58	75.3%	201	18.3%	29	74.3%	120	21%
Job Availability/ Job Security	41	53.2%	105	9.5%	19	48.7%	45	8.0%
Pay and Benefits	45	58.4%	100	9.1%	24	61.5%	46	8.1%
Childhood Experience	19	24.7%	69	6.2%	7	17.9%	21	3.7%
Job Autonomy/ Business Owner	20	26.0%	49	4.5%	12	30.8%	27	4.8%
Need to Challenge Self	16	20.8%	36	3.3%	10	25.6%	29	5.1%
Reputation/Prestige	10	13.0%	17	1.5%	4	10.3%	8	1.4%
Cooperation with other professionals	7	9.1%	15	1.4%	3	7.6%	6	1.1%
Family Expectation	8	10.4%	14	1.3%	5	12.8%	14	2.5%
Having the title "Doctor"	6	7.8%	12	1.1%	7	17.9%	16	2.8%
Did not get into first-choice	3	3.9%	12	1.1%	2	5.1%	9	1.6%
No particular reason	1	1.3%	5	0.5%	2	5.1%	2	0.4%
Other	2	2.6%	4	0.4%	2	5.1%	2	0.4%
Career Aptitude test	0	0%	.		0	0%	.	
Total			1100				566	

5.1.4 University Motivations

Similarly, students were asked whether the University of Waterloo was their first choice when choosing a training institution. An astounding 100% of students in fourth year and 94.7% in first year said that the University of Waterloo was their first-choice institution. 5.3% or four students in first year said that the University of Waterloo, was not their first-choice institution (Table5-8). Students in first and fourth year responded similarly (Table 5-9).

Table 5-8 The count and percentage of first- and fourth-year students who chose the University of Waterloo as their first-choice optometry program.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Was the current university the student's first choice?	Yes	72	94.7%	38	100.0%
	No	4	5.3%	0	0.0%

Table 5-9 As assumptions for Chi-square testing were not met, Fisher's Exact test was used. There was not a significant association between program year and first-choice university, meaning both program years similarly responded.

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.073[a]	1	.150		
Continuity Correction[b]	.810	1	.368		
Likelihood Ratio	3.316	1	.069		
Fisher's Exact Test				.299	.192
Linear-by-Linear Association	2.055	1	.152		
N of Valid Cases	114				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.33.

b. Computed only for a 2x2 table

Students were then asked to rank their top five reasons for choosing their training institution. This question was weighted with the *Most Important* being worth five points and the *Least Important,* one point. The sum of each weighted response is seen in Table 5-10. Both first- and fourth-year students' top reason for choosing The University of Waterloo was *The optometry program is the only one available in my country taught in a language I am fluent in* (Sum %, first year= 28%, fourth year 27%), followed by *Program cost* (Sum%, first year=23%, fourth year=21%). First-year students felt *Location was close to home* (Sum %, first year= 14%) was third, followed by *Location was an area of Canada in which I wanted to live* (Sum %, first year=10%), and lastly *Program reputation* (Sum %, first year 9%). Students in fourth year chose slightly differently with *Program reputation* (Sum %, fourth year= 14%) being third, *Location was close to home* (Sum %, fourth year= 14%) being fourth, and *University reputation* (Sum%, fourth year= 13%) placing fifth. A full summary of student counts can be found in **Appendix D**.

Table 5-10 Table showing the total count and percentage of students who chose each response as one of their top five reasons for choosing their training institution. It also shows the sum of the weighted responses and how much each response reflects the total sum for first- and fourth-year students. The top five reasons students chose are highlighted.

	Program Year							
	First Year Total				Fourth Year Total			
	Count	%	Sum	Sum %	Count	%	Sum	Sum%
Only English School in Canada	71	92.2%	291	28.0%	36	92.3%	156	27.2%
Program Cost	63	81.8%	240	23.1%	35	89.7%	121	21.1%
Location was Close to Home	54	70.1%	149	14.3%	25	64.1%	79	13.8%
Location in Area I Want to Live	37	48.1%	105	10.1%	12	30.8%	27	4.7%
Program Reputation	39	50.6%	96	9.2%	32	82.1%	80	13.9%
University Reputation	43	55.8%	94	9.1%	28	71.8%	73	12.7%
Influence of Family/Friend	17	22.1%	38	3.7%	6	15.4%	12	2.1%
Scholarships or Grants	6	7.8%	12	1.2%	2	5.1%	4	0.7%
Program Curriculum	5	6.5%	9	0.9%	8	20.5%	9	1.6%
Influence of Media/ Promotional Material	2	2.6%	4	0.4%	0	0%	.	
First choice not Available	0	0%	.	0%	1	2.6%	4	0.7%
Other	0	0%	.	0%	5	12.8%	9	1.6%
Total			1038				574	

5.1.5 Exposure and Influence

Exposure to the optometry field and its possible influence on choosing optometry was considered. Students were asked about scenarios where they could have previously been exposed to an optometrist, or eye condition in the hopes of understanding whether this could have influenced students' decisions of choosing a career in optometry.

5.1.5.1 Work Experience

All students, except for 5.2%, of first-year and 2.6% of fourth-year students had some experience of working, volunteering or job shadowing with an optometrist. A full summary of students' experience can be found in Table 5-11. 80.9% of students said that this work experience influenced their decision to choose optometry (Figure 5-3).

Table 5-11 Summary of first- and fourth-year students' work experience

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Exposure to work experience	Yes, job shadowing	64	83.1%	34	87.2%
	Yes, volunteer position	33	42.9%	18	46.2%
	Yes, I have worked in an optometry office	37	48.1%	31	79.5%
	No	4	5.2%	1	2.6%

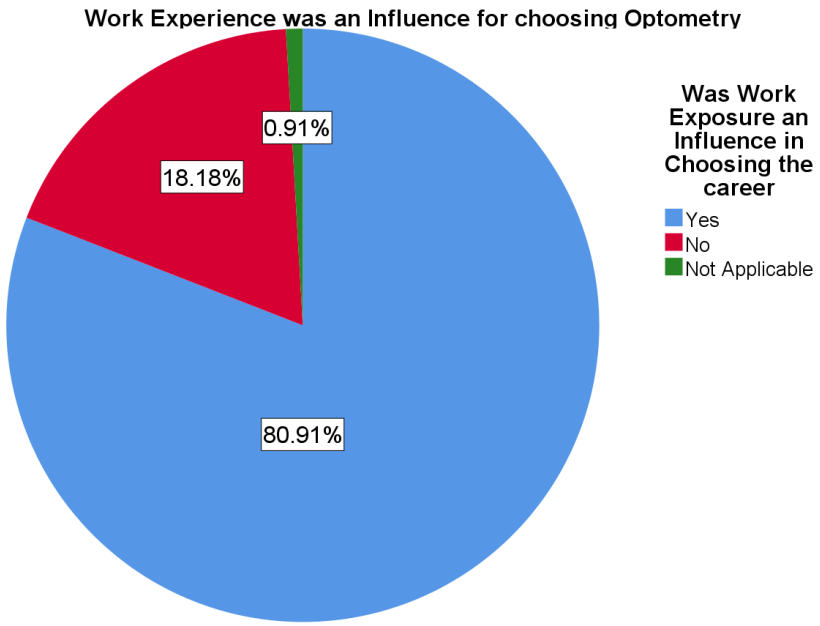

Figure 5-3 Influence work experience has on the respondent optometry students

5.1.5.2 Visual Correction

Most students in first and fourth year wore glasses (81.8% and 94.9%, respectively) and/or contact lenses (51.9% and 74.4%, respectively) (Table 5-12). It is unknown if students were prescribed glasses and contact lenses before enrolling in optometry or whether students were prescribed glasses during their training. To the researcher's knowledge there is no data to compare the number of optometry students who wear glasses to similar university student cohorts. Students were not asked whether they have had refractive surgery. Students were not asked specifically whether having visual correction influenced their decision to choose optometry as a career.

Table 5-12 The number and percentage of first- and fourth-year optometry students who wear glasses and contact lenses, or neither.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Exposure to glasses or contact lenses	Yes, Glasses	63	81.8%	37	94.9%
	Yes, Contact lenses	40	51.9%	29	74.4%
	No	14	18.2%	2	5.1%

5.1.5.3 Eye Conditions

When students were asked about experience having an eye condition, 18.2% of first-year students and 15.4% of fourth-year students said they had an eye condition (not including the need for glasses). More students had parents (19.5% of first years, 17.9% of fourth years) or close relatives (46.8% of first years, 41.0% of fourth years) with eye conditions. Fewer students had close friends (15.6% of first years, 12.8% of fourth years) with eye conditions. A full summary can be seen in Table 5-13. Students were not asked if having an eye condition or knowing a close friend or relative with an eye condition influenced their decision to choose optometry as a career.

Table 5-13 The number and percentage of first- and fourth-year optometry students who had experience with eye conditions.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Exposure to eye conditions	Yes, I do	14	18.2%	6	15.4%
	Yes, my parent	15	19.5%	7	17.9%
	Yes, a close relative	36	46.8%	16	41.0%
	Yes, a close friend	12	15.6%	5	12.8%
	No	17	22.1%	14	35.9%

5.1.5.4 Optometrist

Only a few students had a parent, close relative or close friend who was an optometrist. Parent optometrists were least frequently reported (2.6% of first years, and 0% of fourth years), while close relatives were more frequently reported (9.1% of first years and 2.6% of fourth years), a were close friends (9.1% of first years and 12.8% of fourth years) (Table 5-14). Students were not asked whether having a close friend or family influenced their decision to choose optometry.

Table 5-14 The number and percentage of first- and fourth-year optometry students who had reported a close relationship with an optometrist.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Exposure to an Optometrist	Yes, my parent	2	2.6%	0	0.0%
	Yes, a close relative	7	9.1%	1	2.6%
	Yes, a close friend	7	9.1%	5	12.8%
	No, I have no family or friends who are optometrists	61	79.2%	33	84.6%

5.1.6 Expectations

Students were asked about their expectations for the future in a career in optometry. Questions pertained to the mode of practice, number of practices, hours, reasons for hours to change, income, intent to own a practice or practices, location of work and reasons for choosing this location. Only some of these are considered within this section, but full results are found in **Appendix D**.

5.1.6.1 Mode of Practice

Students were asked what type of practices they planned to pursue. Students could check all the responses that applied. Nearly all first-year students (93.4%) and all fourth-year students

(100%) said they would be interested in *Private practice (Solo or Partnered).* Students were also highly interested in *Volunteer work, Corporate/ Retail practice, Hospital practice* and *Involvement with provincial or federal optometric associations*. Students were not asked about working with regulatory bodies as this was felt to be included in the optometric associations. A full summary of modes of practice can be seen in Table 5-15.

Table 5-15 The number and percentage of first- and fourth-year optometry students' chosen modes of practice.

		Program Year					
		First Year		Fourth Year		Total	
		Count	%	Count	%	Count	%
Mode of Practice	Private practice (Solo or Partnered)	71	93.4%	39	100.0%	110	95.7%
	Corporate/ Retail Practice	28	36.8%	18	46.2%	46	40.0%
	Hospital Practice	20	26.3%	15	38.5%	35	30.4%
	Academia	12	15.8%	6	15.4%	18	15.7%
	Residency	12	15.8%	8	20.5%	20	17.4%
	Industry-based	6	7.9%	7	17.9%	13	11.3%
	Locum work	0	0.0%	7	17.9%	7	6.1%
	Home visits	9	11.8%	4	10.3%	13	11.3%
	Volunteer work	37	48.7%	24	61.5%	61	53.0%
	Provincial or federal optometric associations	14	18.4%	10	25.6%	24	20.9%
	Undecided	2	2.6%	3	7.7%	5	4.3%
	I do not know	3	3.9%	1	2.6%	4	3.5%

5.1.6.2 Debt

Students were asked several questions regarding their financial standings and expectations, including what students expected their debt from optometry school to be. The question specifically asked about optometry school debt though some students may have interpreted this as their full debt. Students ranged from *No debt* (8.6%) to over $*200,000*+ CAD (0.9%) debt. Majority ranged from $25,000-$125,000 CAD with a peak between $50,000-$100,000 CAD. A full summary can be found in Table 5-16 with results separated by program year in Figure 5-4.

Table 5-16 First- and fourth-year optometry student debt

Student Debt * Program Year Cross tabulation

Count

		Program Year					
		First Year	%	Fourth Year	%	Total	%
Student Debt	No debt	7	9.1%	3	7.7%	10	8.6%
	$1-$25,000	4	5.2%	1	2.6%	5	4.3%
	$25,000-$50,000	11	14.3%	9	23.1%	20	17.2%
	$50,000-$75,000	18	23.4%	6	15.4%	24	20.7%
	$75,000-$100,000	16	20.1%	8	20.5%	24	20.7%
	$100,000-$125,000	13	16.9%	7	17.9%	20	17.2%
	$125,000-$150,000	5	6.5%	2	5.1%	7	6.0%
	$150,000-$175,000	2	2.6%	3	7.7%	5	4.3%
	$200,000+	1	1.3%	0	0	1	0.9%
Total		77	100.0%	39	100.0%	116	100.0%

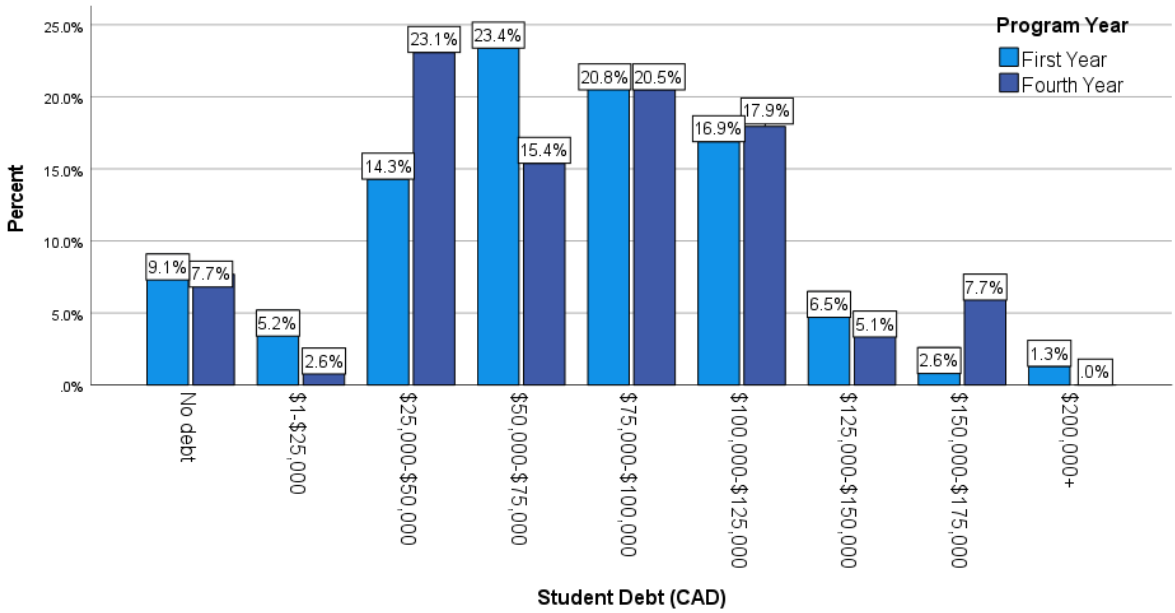

Figure 5-4 First- and fourth-year optometry student debt.

5.1.6.3 Income

Students were asked about what their expected gross income would be within the first year following graduation (Table 5-17). Students' expected wages ranged from *less than $60,000 CAD (5.2%)* up to *$140,000-$160,000 CAD* (3.5%). No respondents said they expected to make *$160,000+ CAD* within their first year after graduation. Most students expect their wages to be between $60,000- $120,000 CAD, with a peak at *$80,000- $100,000 CAD (38.3%)* (Figure 5-5).

Table 5-17 First- and fourth-year optometry students' expected income within their first year upon graduating.

		Program Year					
		First Year		Fourth Year		Total	
		Count	%	Count	%	Count	%
Expected Wage	<$60,000	2	2.6%	4	10.5%	6	2.5%
	$60,000-$80,000	16	20.8%	15	39.5%	31	27.0%
	$80,000-$100,000	35	45.5%	9	23.7%	44	38.3%
	$100,000-$120,000	18	23.4%	8	21.1%	26	22.6%
	$120,000-$140,000	2	2.6%	1	2.6%	3	2.6%
	$140,000-$160,000	3	3.9%	1	2.6%	4	3.5%
	$160,000+	0	0.0%	0	0.0%	0	0%
	I don't Know	1	1.3%	0	0.0%	1	0.9%

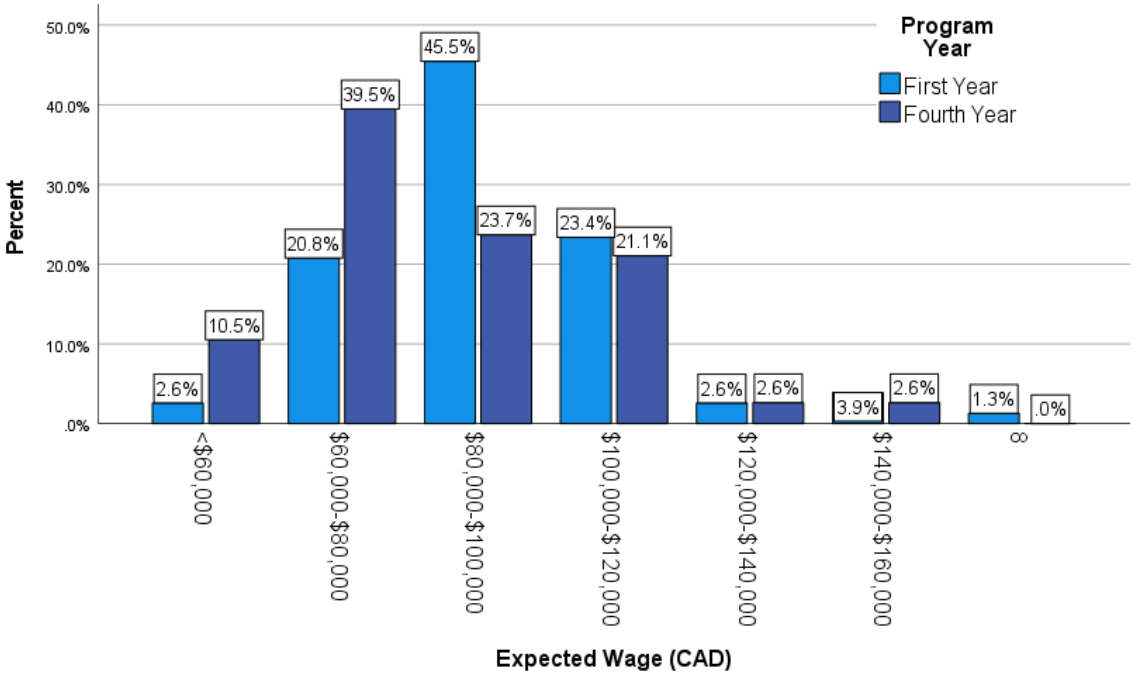

Figure 5-5 Bar graph depicting optometry students' expected wage separated by program year.

5.1.6.4 Hours

Students varied on the number of hours they felt they would work at the beginning of their careers (because this was a paper survey, students were able to check more than one option for this question). They ranged from *11 -20 hours* to *50+ hours* per week. Most students felt that they would work *31-40 hours* per week with a close second being *41-50 hours* per week. Some first-year students (15.8%) felt that they would work *21-30 hours* per week and one fourth-year respondent expected to only work *11-20 hours* per week. A detailed summary is found in Table 5-18 and Figure 5-6.

Table 5-18 The number of hours first- and fourth-year students expect to work per week within their first year of practice.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Number of hours expected to work	Less than 10 hours	0	0.0%	0	0.0%
	11-20 hours	0	0.0%	1	2.6%
	21-30 hours	12	15.8%	0	0.0%
	31-40 hours	33	43.4%	22	56.4%
	41-50 hours	29	38.2%	14	35.9%
	50+ hours	4	5.3%	3	7.7%

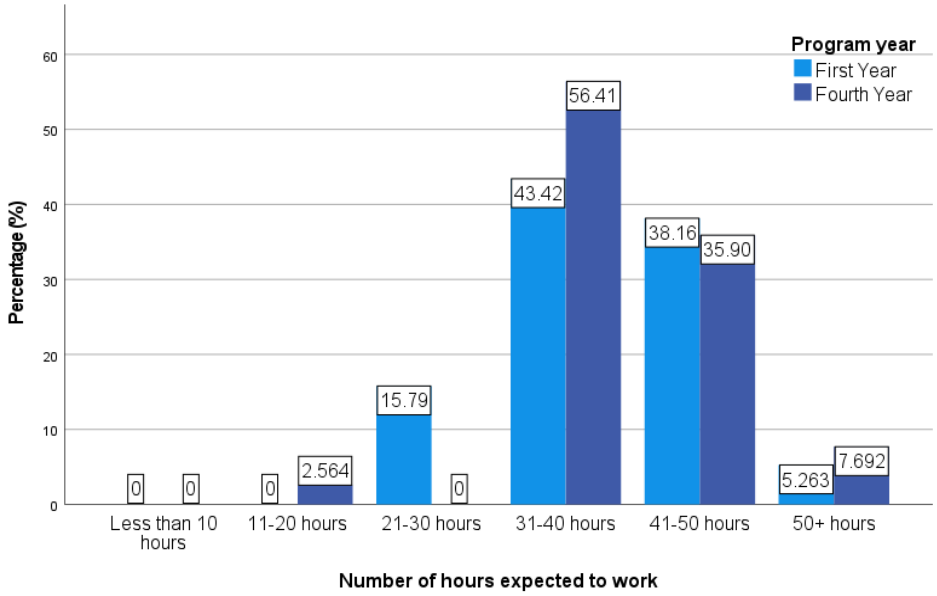

Figure 5-6 Bar graph depicting the number of hours per week optometry students expected to work within their first year of practice separated by program year.

5.1.6.5 Practice ownership

Students were asked if they intended to own a practice, how many practices, and how long until they intended to purchase a practice, as well as optical dispensary ownership. Only their

intention to own a practice is discussed in the results section but all the other data is available in **Appendix D**. Half of both first- and fourth-year students intended to own a practice, 11.7% of first years and 17.9% of fourth years did not intend to own a practice, and the remaining students were unsure (Table 5-19). Students who said they were interested in purchasing a practice were then asked if they intended to own an optical dispensary as well, with 86.4% of first years and 85.7% of fourth years saying they would. It should be noted that some students who did not say *Yes* to the purchasing question still responded to this question. This was a pen-and-paper questionnaire and thorough instructions indicated which questions should be answered; however, not all respondents followed the instructions.

Table 5-19 First- and fourth-year optometry students' intent to own their own practice.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Intent to own a Practice	Yes	39	50.6%	20	51.3%
	No	9	11.7%	7	17.9%
	I don't know	29	37.7%	12	30.8%

5.1.6.6 Location

Students were asked about where they intended to locate following their education and the reasons for choosing their location. The top reason for both the first- and fourth-year students was *Proximity to family* (85.7% first years, 87.2% fourth years). The next four ranked reasons for first-year students were: *Job prospects/ Job availability* (63.6%), *Earning potential/ Benefits including Optometric reimbursement* (50.6%), *Cost of living* (49.4%), and *Proximity to friends* (48.1%). In comparison, fourth-year students reported: *Proximity to friends* (61.5%), *Proximity to significant other* (59.0%), *Job prospects/ Job availability* (51.3%), and *Prefer living in the city* (43.6%) were the top reasons for choosing their practice location. A full list of reasons for choosing a practice location can be found in Table 5-20.

Other responses included "experience in a rural setting-> more exposure to disease" and "I already have a job offer there."

Table 5-20 First- and fourth-year optometry students' reasons for choosing their practice location. Students' top five reasons from each program year are highlighted.

	Program Year			
	First Year		Fourth Year	
	Count	%	Count	%
Proximity to family	66	85.7%	34	87.2%
Job prospects/ Job availability	49	63.6%	20	51.3%
Earning potential/ Benefits including optometric reimbursement	39	50.6%	16	41.0%
Cost of living	38	49.4%	13	33.3%
Proximity to friends	37	48.1%	24	61.5%
Proximity to significant other	36	46.8%	23	59.0%
Prefer living in the city	35	45.5%	17	43.6%
Prefer living in the country	24	31.2%	8	20.5%
Demand/ Filling in a void	17	22.1%	10	25.6%
Other	0	0.0%	2	5.1%

5.2 Main Study

As with the pilot study, not all the data from the main study is presented in this chapter, but all the data can be found in **Appendix E.** This includes: the language that students responded in, the age at which students chose optometry as a career, what students felt was an optometrists' most important role, areas of study students are interested in, and the number of acceptances students received. Future expectation data including the number of practices students expected to work at initially, reasons for hours to change, and expected location and community size students wish to practice in was also included. Two questions related to, the number of years students expected until practice ownership, and intent to own an optical dispensary, were not included in this chapter or **Appendix E** as there were no responses due to a technical issue. Association testing will only be presented when conducted and an association was present.

5.2.1 Response Rate

Of the 901 students contacted, 261 responded. One student was eliminated due to lack of consent and one student was eliminated because they did not respond to any question other than consent, leaving a total of 259 valid student responses. The total number of students eligible for participation from each school or college's first-year class was provided by ASCO's Annual Student Data Report 2019-2020 or by an email confirmation from the university administration. (8) Thus the overall response rate was 28.7%. Response rates of individual schools ranged from 13.5% to 75.4%. Sixty students (23.2%) studied in Canada and 199 students (76.8%) studied in the USA.

The response rate was defined as the number of students who completed or partially completed the questionnaire, divided by the number of students within the first year in participating optometry programs. Twenty-five students did not complete the entire questionnaire. Non-response was most apparent towards the end of the survey. Missing data is acknowledged for each individual question within **Appendix E.**

The response rate for each university is given in Table 5-21. Representation of each university is shown graphically in Figure 5-7.

Table 5-21 Optometry student response rate of each participating School or College of optometry.

University	Proportion of participating students	Response rate
Ferris State University, Michigan College of Optometry	11/38	28.95%
Marshall B Ketchum University, Southern California College of Optometry	18/104	17.30%
Southern College of Optometry	37/136	27.21%
The Ohio State University, College of Optometry	22/68	32.35%
University of California Berkeley, School of Optometry	21/70	30.00%
University of Houston, College of Optometry	16/104	15.38%
University of Missouri- Saint Louis, College of Optometry	7/46	15.21%
University of Pikeville, Kentucky College of Optometry	49/65	75.38%
Illinois College of Optometry	18/133	13.53%
Université de Montréal, École d'Optométrie	18/46	39.13%
University of Waterloo, School of Optometry and Vision Science	42/91	46.15%
Total	**259/ 901**	**28.75%**

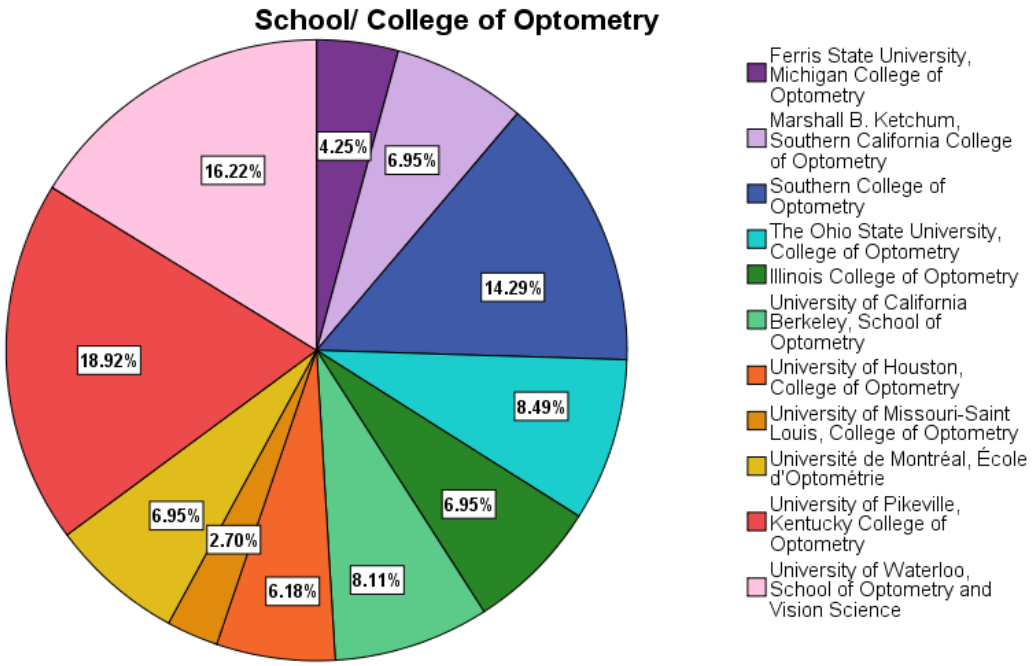

Figure 5-7 Representation of student responses from each participating School or College of Optometry.

5.2.2 Demographics

5.2.2.1 Gender

Most of the students that participated identified as *Female* (73.8%), followed by *Male* (26.3%) (Figure 5-8). No students identified as *Transgender*, *Did not want to disclose*, or identified as *Other*. In comparison, ASCO's Annual Student Data Report 2019-2020 shows that 30% of first-year optometry students of the same cohort training in the USA are Male and 70% Female. ASCO did not release information on whether students identified as other genders. (8) There was a slight over-representation of females within this study.

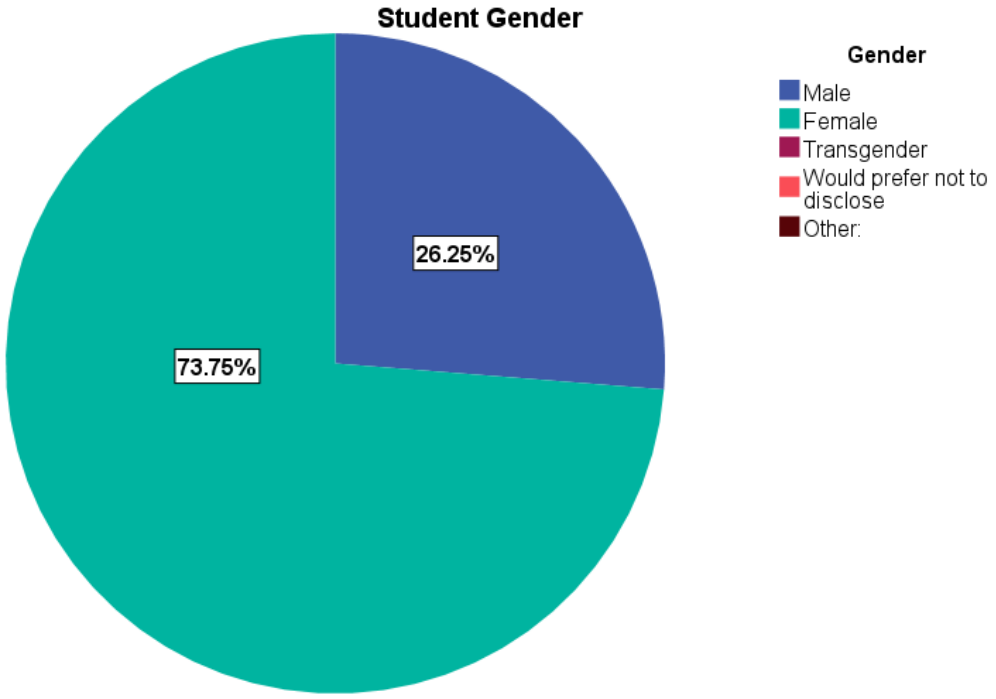

Figure 5-8 Respondents identified gender.

5.2.2.2 Age

The students ranged in age from 19 to 35 years old. The average age was 23 years old and the mode was 22 years old (Table 5-22). It should be noted that this was an open question, and students were expected to type in their age. Eighteen participants did not respond to this question. One respondent's answer needed to be entered manually as it contained a word and was eliminated in the process of transferring data from REDCap® to SPSS®. A summary of students' ages can be found in **Appendix E**.

Table 5-22 Optometry students' mean, median and mode age.

Statistics

Age

N	Valid	243
	Missing	18
Mean		23.20
Median		23.00
Mode		22
Std. Deviation		2.177
Range		16
Minimum		19
Maximum		35

5.2.2.3 Primary Language

An overwhelming majority (88.8%) of students said that *English* was their primary language. 6.2% said *French* and less than 1% said *Spanish* was their primary language (Table 5-23). *Other* primary languages included Telugu, Chinese, Arabic, Farsi, Mandarin (3 people), Urdu (2 people), Bengali, and Bulgare. In the following table, *Percent* is calculated from referencing the number of students who participated in the survey, whereas *Valid percent* is calculated from the number of students who participated in the specific question. The number of students who did not respond to the question is given in "*Missing System"* and is not included in the *Valid percent* calculations.

Table 5-23 Optometry student's primary language.

Primary Language

		Frequency	Percent	Valid Percent
Valid	English	229	87.7	88.8
	French	16	6.1	6.2
	Spanish	2	.8	.8
	Other:	11	4.2	4.3
	Total	258	98.9	100.0
Missing	System	3	1.1	
Total		261	100.0	

5.2.2.4 Home address

Student home addresses at the time of application represented six Canadian provinces and 33 American states (Table 5-24). In Canada, the most frequently identified provinces coincided with the provincial location of the two optometry schools - *Ontario* and *Quebec*. The same trend was observed for American addresses. The state with the highest frequency of students was *California,* where there were two participating schools. Each highlighted state or province (in yellow) in the table had one or more participating universities within it. This can also be seen graphically in Figure 5-9. It should be noted that respondents were not asked their citizenship or place of birth.

Table 5-24 Students' home address on the application to their optometry training. Provinces and States with a participating School or College of Optometry are highlighted.

		Frequency	Percent	Valid Percent
Valid	Alberta	6	2.3	2.4
	British Columbia	7	2.7	2.8
	Manitoba	3	1.1	1.2
	New Brunswick	2	.8	.8
	Ontario	35	13.4	13.8
	Quebec	16	6.1	6.3
	Arizona	1	.4	.4
	Arkansas	2	.8	.8
	California	30	11.5	11.8
	Florida	3	1.1	1.2
	Illinois	5	1.9	2.0
	Indiana	4	1.5	1.6
	Kansas	4	1.5	1.6
	Kentucky	13	5.0	5.1
	Louisiana	7	2.7	2.8
	Massachusetts	1	.4	.4
	Michigan	18	6.9	7.1
	Minnesota	4	1.5	1.6
	Mississippi	2	.8	.8
	Missouri	8	3.1	3.1
	Montana	1	.4	.4
	Nebraska	4	1.5	1.6
	Nevada	1	.4	.4
	New Jersey	2	.8	.8
	New Mexico	1	.4	.4
	New York	3	1.1	1.2
	North Carolina	3	1.1	1.2
	North Dakota	1	.4	.4
	Ohio	14	5.4	5.5
	Pennsylvania	3	1.1	1.2
	South Dakota	1	.4	.4

	Tennessee	9	3.4	3.5
	Texas	21	8.0	8.3
	Utah	5	1.9	2.0
	Virginia	5	1.9	2.0
	Washington	2	.8	.8
	West Virginia	2	.8	.8
	Wisconsin	4	1.5	1.6
	Wyoming	1	.4	.4
	Total	254	97.3	100.0
Missing	System	7	2.7	
Total		261	100.0	

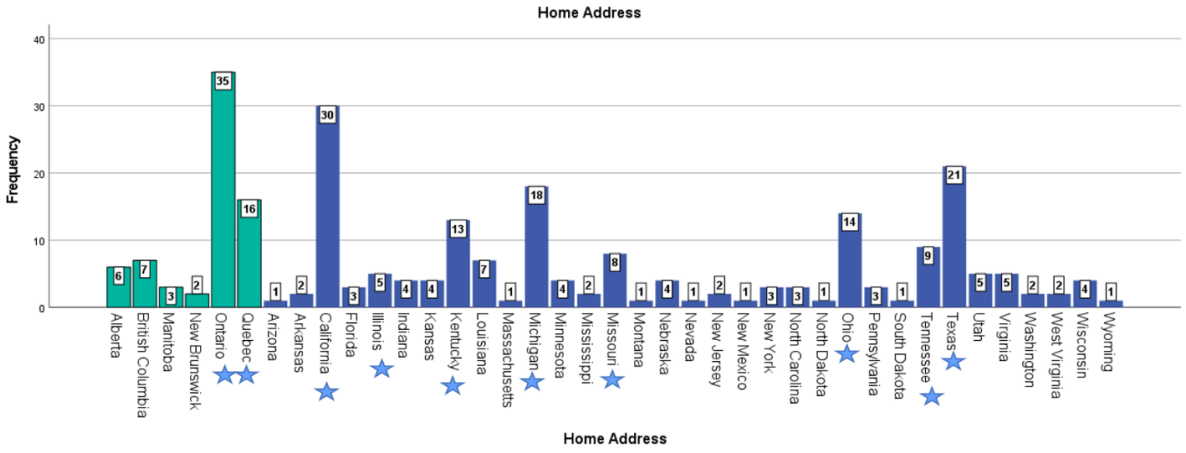

Figure 5-9 Locations of students' home addresses. States and Provinces with a participating optometry program are marked by the blue stars.

5.2.2.5 Background Education

The respondents had a variety of educational backgrounds when entering the optometry program. The majority (82.9%) had a *Bachelor's degree*, with 8.5% enrolling directly from *High School and a couple of years of a bachelor's degree* completed. 3.5% of students had a *Master's degree* and 0.8% had *Other post-graduate degrees* (Table 5-25). 4.3% of students went through *Collège d'enseignement general et professional* (*CEGEP),* a program specific to Quebec.

Table 5-25 Student education prior to enrolling in the optometry program.

		Frequency	Percent	Valid Percent
Valid	High School and a couple of years of a bachelor's degree	22	8.4	8.5
	CEGEP	11	4.2	4.3
	Bachelor's Degree	214	82.0	82.9
	Master's degree	9	3.4	3.5
	Other post-graduate degree (eg. professional)	2	.8	.8
	Total	258	98.9	100.0
Missing	System	3	1.1	
Total		261	100.0	

5.2.3 Career Motivations

Student career motivations were investigated. In total, 79.5% of students listed optometry as their first choice of career. When focusing on students who went to school in Canada, that percentage was 90.0%, and in the USA was 76.3% (Table 5-26). Chi-square testing showed a significant association ($p<0.05$) between optometry as a first-choice career and the country students studied in (Table 5-27) Students who did not choose optometry as a first-choice career had a variety of *Other* careers they wanted to enter. Many (28 people) wanted to go into medicine of varying sub-specialties with students choosing: dentistry (3 people), physical therapy (3 people), pharmacy (2 people), and architecture (2 people). A full list of other first-choice careers can be found in **Appendix E.**

Table 5-26 The number and percentage of students who agreed or disagreed that optometry was their first-choice career.

		Country			
		Canada		The United States of America	
		Count	Valid %	Count	Valid %
Was optometry your 1st choice when choosing a career?	No	6	10.0%	47	23.7%
	Yes	54	90.0%	151	76.3%

Table 5-27 Chi-square testing showed an association between optometry as a first-choice career and the country students studied in.

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.324[a]	1	.021		
Continuity Correction[b]	4.515	1	.034		
Likelihood Ratio	6.011	1	.014		
Fisher's Exact Test				.027	.013
Linear-by-Linear Association	5.303	1	.021		
N of Valid Cases	258				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 12.33.

b. Computed only for a 2x2 table

Students were then asked to rank their top five reasons for choosing a career in optometry. They were able to choose less than five options if they felt five options did not apply to them but were not able to choose two options as equal. This was done so students would think about the question and chose what was most important to them. Table 5-28 displays the total count of responses. The results were divided into two groups: 'students studying in Canada' and 'students studying in the USA'. Table 5-29 displays a weighted result, with the highest number being the *Most Important* and the lowest number being the *Least Important* using the same methodology from the Pilot Study (5.1.3). Associations were not measured although, a sum percentage was created from the total sum for each country of study to show the proportion of each response.

Both cohorts had the same top five reasons for choosing optometry as a career, although they differed slightly on the ranking order. Students in both countries felt the *Desire to help people* (Sum%, CAN= 20%, USA= 18.2%) was their number one reason for choosing optometry as a career. Students in Canada then chose, in descending order, *Interest in healthcare* (Sum%, CAN=18%), *Good work-life balance* (Sum %, CAN=16%), *Interest in eyes and vision* (Sum%, CAN=11%), and *Job availability/Job security* (Sum%, CAN=6%). Students in the USA chose, in descending order, *Good work-life balance* (Sum%, USA= 15%), *Interest in eyes and vision* (Sum%, USA=14%), *Interest in healthcare* (Sum%, USA=13%) and *Job availability/Job security* (Sum%, USA=8%). Twenty-five students did not respond to this question.

Table 5-28 The total count of all students top five reasons for choosing optometry as a career.

	1 (Most) Count	2 Count	3 Count	4 Count	5 (Least) Count	Total Count
Job availability and job security	13	17	22	20	14	86
Interest in healthcare	44	35	25	14	19	137
Interest in eyes and Vision	36	37	21	21	17	132
Interest in optics	2	2	2	3	5	14
Desire to help people	61	46	35	26	7	175
The need to challenge oneself	1	5	6	5	4	21
I have always been good at academics	0	2	2	6	2	12
Good work-life balance	28	35	44	41	25	173
Job autonomy/ opportunity to own your own business	1	9	9	12	18	49
Pay and/or benefits	5	10	15	25	33	88
Inherit/ work in family business	2	3	2	0	2	9
Family expectation/ pressure	1	0	0	4	3	8
Reputation/ prestige	1	0	0	4	4	9
Enjoy working with people	6	7	14	13	18	58
Experience as a child/ adolescent with optometry	10	8	11	11	9	49
Did not get into first-choice program	0	0	0	0	0	0
Outreach opportunities	1	2	4	1	3	11
Community involvement	1	0	3	3	3	10
Opportunities to collaborate with other professionals	0	1	0	1	2	4
Having the title of " Doctor"	2	1	2	2	8	15
A mentor suggested it	0	4	3	3	7	17
Inspired by own optometrist/ pleasant experiences with an optometrist	13	7	11	10	12	53
"Clean profession"	6	4	2	8	15	35
No particular reason for choosing this career	0	0	0	0	1	1
Other:	0	0	0	0	1	1

Table 5-29 The sum of the weighted responses for reasons the students chose optometry as a career, and how much each response reflects the total sum based on the country in which the students study. The top five reasons chosen are highlighted.

	Country			
	Canada		The United States of America	
	Sum	Sum %	Sum	Sum %
Desire to help people	164	20.0%	489	18.2%
Interest in healthcare	147	17.9%	335	12.5%
Good work-life balance	129	15.7%	390	14.5%
Interest in eyes and vision	86	10.5%	364	13.6%
Job availability and job security	48	5.8%	205	7.6%
Pay and/or benefits	34	4.1%	159	5.9%
Experience with optometry/eyecare as a child	34	4.1%	112	4.2%
Enjoy working with people	32	3.9%	112	4.2%
Job autonomy/ opportunity to own your own business	29	3.5%	81	3.0%
"Clean Profession"	24	2.9%	59	2.2%
Inspired by own optometrist	18	2.2%	140	5.2%
The need to challenge oneself	18	2.2%	39	1.5%
Interest in optics	13	1.6%	22	0.8%
I have always been good at academics	13	1.6%	15	0.6%
Outreach opportunities	7	0.9%	23	0.9%
Inherit/ work in family business	5	0.6%	25	0.9%
Family expectation/ pressure	5	0.6%	11	0.4%
Reputation/ prestige	4	0.5%	13	0.5%
Professional Collaboration	4	0.5%	4	0.1%
Community involvement	3	0.4%	20	0.7%
A mentor suggested it	2	0.2%	36	1.3%
Having the title of "Doctor"	2	0.2%	30	1.1%
No particular reason	1	0.1%	.	
Other	.		1	0.0%
Did not get into first-choice program	.		.	
Total	822		2685	

5.2.4 University Motivations

Similarly, to career motivations, the students were asked whether they were enrolled at their first-choice training institution and why they chose that institution.

In total, 86.4% of students were enrolled at their first-choice institution. When splitting the results into students studying in Canada versus the USA (Table 5-30), 96.4% of students in Canada and 83.3% of students studying in the USA were enrolled in their first-choice program. When conducting Chi-square testing, an association was found between whether students were enrolled at their first-choice institution and the country in which they study (Table 5-31).

Table 5-30 The number and percentage of students who agreed or disagreed that they are enrolled at their first-choice institution.

		Country			
		Canada		The United States of America	
		Count	Valid %	Count	Valid %
Enrolled in 1st choice program	No	2	3.6%	30	16.7%
	Yes	54	96.4%	150	83.3%

Table 5-31 Chi-square testing shows an association for students enrolled at their first-choice school and the country in which they study.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.249[a]	1	.012		
Continuity Correction[b]	5.182	1	.023		
Likelihood Ratio	7.870	1	.005		
Fisher's Exact Test				.013	.007
Linear-by-Linear Association	6.223	1	.013		
N of Valid Cases	236				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.59.

b. Computed only for a 2x2 table

When comparing the number of programs students applied to, 78.6% of students in Canada applied to only one school, whereas only 11.1% of students in the USA applied to only one school. 30.0% of students studying in the USA applied to five or more schools, whereas no students in Canada did. A visual representation of the number of applications students submitted can be seen in Figure 5-10. Chi-square testing shows an association between the number of applications students submitted and their country of study (Table 5-32).

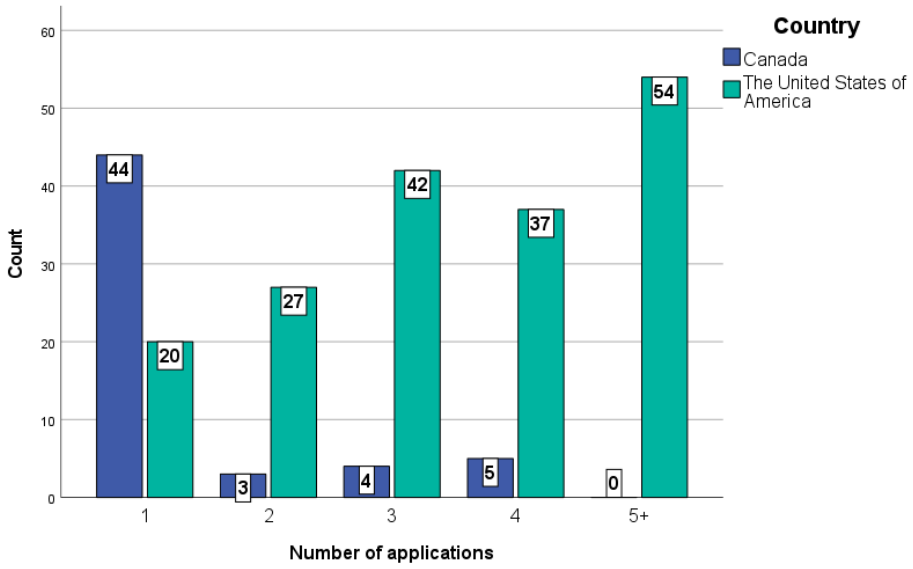

Figure 5-10 The number of applications students submitted to Optometry programs.

Table 5-32 Chi-square testing shows an association for the number of schools a student applied to and the country in which they studied.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	100.589[a]	4	<.001
Likelihood Ratio	101.778	4	<.001
Linear-by-Linear Association	71.573	1	<.001
N of Valid Cases	236		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.12.

When students were asked to rank their top five reasons for choosing their institution the main reason was *Program reputation*, followed by *Location was close to home*, *Program cost*, *Welcome day/Interview day* and *University reputation*. The number of students who chose each selection is shown in Table 5-33.

Table 5-33 The total count of all students top five reasons for choosing their training institution.

	1 (Most) Count	2 Count	3 Count	4 Count	5 (Least) Count	Total Count
University reputation, regardless of location	20	19	10	20	21	90
Program reputation, regardless of location	54	30	26	33	15	158
Location was close to home	42	38	33	12	12	137
Location was in an area of Canada/USA in which I wanted to live	8	13	19	18	8	66
Program cost	26	30	23	18	15	112
Influence of a friend or family member	3	4	11	24	22	64
Influence of my optometrist	0	20	14	16	14	64
Influence of media or promotional material	1	1	3	5	5	15
First choice was not available	10	3	2	3	4	22
The optometry program is the only one available in my country taught in a language I am fluent in	19	10	6	3	4	42
Scholarships and grants	4	11	16	11	7	49
"Gut Feeling"	15	9	11	16	36	87
Welcome day/ Interview day	16	22	26	22	25	111
Program curriculum	12	18	25	17	24	96
Other:	4	2	2	5	3	16

When separating the students into the country in which they are studying, and weighing the responses, the motivations for choosing their institution differ (Table 5-34). Students in the United States chose their universities in order of *Program reputation* (Sum%, USA=18%), *Location close to home* (Sum%, USA=13%), *Welcome day/Interview day* (Sum% USA=11%), *Program curriculum* (Sum%, USA=10%), and *Program cost* (Sum%, USA=9%). Students in Canada were comparably different as their top response was *The optometry program is the only one available in my country taught in a language I am fluent in* (Sum%, CAN=21%), followed by *Location was close to home* (Sum%, CAN= 19%), *Program cost* (Sum%, CAN=18%), *Program reputation* (Sum%, CAN=10%), and the *Location was in an area of Canada/USA I wanted to live* (Sum%, CAN=9%).

Table 5-34 Table of the sum of the weighted responses regarding reasons why the students chose their training institution and how much each response reflects the total sum based on the country in which the students study. The top five reasons chosen are highlighted.

	Country			
	Canada		The United States of America	
	Sum	Sum %	Sum	Sum %
The optometry program is the only one available in my country taught in a language I am fluent in	163	20.8%	-	0%
Location was close to home	150	19.2%	347	13.2%
Program cost	143	18.3%	227	8.6%
Program reputation, regardless of location	77	9.8%	472	18.0%
Location in area of Canada/USA I want to live	68	8.7%	125	4.8%
University reputation, regardless of location	48	6.1%	219	8.3%
Influences of a friend or family member	36	4.6%	98	3.7%
Influence of my optometrist	32	4.1%	136	5.2%
Welcome day/ Interview day	18	2.3%	297	11.3%
Other:	13	1.7%	34	1.3%
"Gut feeling"	10	1.3%	202	7.7%
Scholarships or Grants	9	1.2%	132	5.0%
Program curriculum	8	1.0%	257	9.8%
Influence of media or promotional material	5	0.6%	28	1.1%
First choice not available	2	0.3%	52	2.0%
Total	782		2626	

5.2.5 Influences

A student's previous exposure to the optometry field and whether it influenced their preference to enter the career was investigated. Students were asked about previous exposure to eye conditions, vision correction, optometrists, work experience, and eye or vision research.

5.2.5.1 Work experience

Of the possible categories, the most frequent exposure (92.4% of respondents) was to work experience (Table 5-35). Of those students who had work experience, 95.4% said it influenced their decision to enter optometry (Table 5-36). The survey was delivered such that only students who responded *Yes* regarding the question on work experience (Table 5-35) were further able to answer the question about its influence (Table 5-36). Students who responded *No* were not given this option. *Missing System* in this case is therefore the total number of students who answered *No* to the pre-requisite question as well as those who did not respond to it at all. The above conditions were applied for all questions probing student influences in Section 5.2.5

As in previous sections, *Percent* is calculated from the number of students who participated in the survey, whereas *Valid percent* is calculated from the number of students who participated in the specific question.

Table 5-35 The number and percentage of optometry students with previous work experience

		Count	Valid %	%
Exposure to Work Experience	Yes, job shadowing	178	75.4%	68.2%
	Yes, volunteer position	79	33.5%	30.3%
	Yes, I have worked in an eye care field	146	61.9%	55.9%
	No	18	7.6%	6.9%

Table 5-36 The percentage of students who were influenced by their work experience.

		Frequency	Percent	Valid Percent
Valid	No	10	3.8	4.6
	Yes	208	79.7	95.4
	Total	218	83.5	100.0
Missing	System	43	16.5	
Total		261	100.0	

5.2.5.2 Vision correction

Most (82.2%) of students had some form of visual correction (Table 5-37), although only 68.4% of those students said it influenced their choice of optometry (Table 5-38). It was not specified whether the student wore glasses before entering the program or started to wear them during their studies. However, since the students were first years, this is likely to be a very small number if any.

Table 5-37 The number and percentage of students who wear glasses, contact lenses or neither.

		Count	Valid %	%
Exposure to Glasses and Contact lenses	Yes, glasses	192	81.4%	73.6%
	Yes, contact lenses	154	65.3%	59.0%
	No	42	17.8%	16.1%

Table 5-38 The percentage of students who were influenced by vision correction.

		Frequency	Percent	Valid Percent
Valid	No	61	23.4	31.6
	Yes	132	50.6	68.4
	Total	193	73.9	100.0
Missing	System	68	26.1	
Total		261	100.0	

5.2.5.3 Eye conditions

Table 5-39 shows the number of students who either had an eye condition or had a close relative or friend with an eye condition. Only 28.0% of students did not know someone with an eye condition, meaning that 72.0% either have/had an eye condition, knew someone with an eye condition, or both. Of the 72%, only 42.7% (Table 5-40) said it influenced their decision to have a career in optometry.

Table 5-39 The number and percentage of students who either had an eye condition or had a close relative or friend with an eye condition.

		Count	Valid %	%
Exposure to Eye Conditions	Yes, I do	40	16.9%	15.3%
	Yes, my parent	58	24.6%	22.2%
	Yes, a close relative	113	47.9%	43.3%
	Yes, a close friend	27	11.4%	10.3%
	No	66	28.0%	25.3%

Table 5-40 The percentage of students who were influenced by eye conditions.

		Frequency	Percent	Valid Percent
Valid	No	98	37.5	57.3
	Yes	73	28.0	42.7
	Total	171	65.5	100.0
Missing	System	90	34.5	
Total		261	100.0	

5.2.5.4 Optometrist

Only 29.2% of students knew a close relative or friend that was an optometrist or in an eye-related field of work (Table 5-41). Of that, 79.7% said it influenced their decision to choose optometry (Table 5-42).

Table 5-41 The number and percentage of students who knew a close relative or friend who was an optometrist or in an eye-related field of work.

		Count	Valid %	%
Exposure to an Optometrist	Yes, my parent	17	7.2%	6.5%
	Yes, a close relative	19	8.1%	7.3%
	Yes, a close friend	39	16.5%	14.9%
	No	167	70.8%	64.0%

Table 5-42 The percentage of students who were influenced by a close relationship with an Optometrist.

		Frequency	Percent	Valid Percent
Valid	No	14	5.4	20.3
	Yes	55	21.1	79.7
	Total	69	26.4	100.0
Missing	System	192	73.6	
Total		261	100.0	

5.2.5.5 Eye/ Vision research

Lastly, 12.7% of students had a history in eye or vision research (Table 5-43) and, of that, 66.7% said it influenced their decision to choose optometry (Table 5-44).

Table 5-43 The number and percentage of students with experience in eye or vision research.

		Frequency	Percent	Valid Percent
Valid	No	206	78.9	87.3
	Yes	30	11.5	12.7
	Total	236	90.4	100.0
Missing	System	25	9.6	
Total		261	100.0	

Table 5-44 The percentage of students who were influenced by their eye or vision research.

		Frequency	Percent	Valid Percent
Valid	No	10	3.8	33.3
	Yes	20	7.7	66.7
	Total	30	11.5	100.0
Missing	System	231	88.5	
Total		261	100.0	

5.2.6 Expectations

Respondents were asked about their future expectations within the optometry field. Questions included: the type of practice they wanted to be involved in, what they expected their hours to be, expected salary, and potential practice ownership. A comprehensive list of survey results can be found in **Appendix E**.

5.2.6.1 Mode of Practice

When asked to check all the modes of practice that students were interested in within their future career, the majority (92.8%) of students were interested in *Private practice,* while 30.9% were interested in *Hospital practice,* and 29.7% were interested in *Corporate/ Retail practice* (Table 5-45). Over 1/3 of students (36.4%) wanted to participate in *Volunteer work,* and just under 1/3 of students (30.5%) wanted to continue their education via a *Residency*. Results separated by country are shown in Table 5-46. Responses showed a similar trend between the two countries, although students studying in the USA appeared to have an interest in working in *Veterans' Affairs Hospitals* and with the *Military/ Navy/ Air Force,* then students studying in Canada. Chi-Square testing could not be done in SPSS in the format used and therefore significance was not measured.

Table 5-45 The number and percentage of optometry students interested in each mode of practice. Students could choose as many as applied.

	Count	Valid %	%
Private practice (Solo or Partnered)	219	92.8%	83.9%
Volunteer work	86	36.4%	33.0%
Hospital practice	73	30.9%	28.0%
Residency	72	30.5%	27.6%
Corporate/ Retail practice	70	29.7%	26.8%
Academia	45	19.1%	17.2%
Minor eye surgical procedures	43	18.2%	16.5%
Laser surgery	43	18.2%	16.5%
Veterans' Affairs Hospital	37	15.7%	14.2%
Involvement with state, provincial or federal optometric associations	31	13.1%	11.9%
I don't know	24	10.2%	9.2%
Military/ Navy/ Air Force	19	8.1%	7.3%
Industry-based	18	7.6%	6.9%
Home Visits	7	3.0%	2.7%
Other:	4	1.7%	1.5%
Locum work	3	1.3%	1.1%

Table 5-46 The number and percentage of students interested in each mode of practice separated by the country in which they study.

		Country			
		Canada		The United States of America	
		Count	Valid %	Count	Valid %
Mode of Practice	Private practice (Solo or Partnered)	53	94.6%	166	92.2%
	Corporate/ Retail practice	14	25.0%	56	31.1%
	Hospital practice	18	32.1%	55	30.6%
	Veterans' Affairs Hospital	1	1.8%	36	20.0%
	Military/ Navy/ Air Force	1	1.8%	18	10.0%
	Minor eye surgical procedures	11	19.6%	32	17.8%
	Academia	9	16.1%	36	20.0%
	Residency	15	26.8%	57	31.7%
	Industry-based	3	5.4%	15	8.3%
	Locum work	1	1.8%	2	1.1%
	Home Visits	2	3.6%	5	2.8%
	Volunteer work	22	39.3%	64	35.6%
	Laser surgery	12	21.4%	31	17.2%
	Involvement with state, provincial or federal optometric associations	7	12.5%	24	13.3%
	I don't know	3	5.4%	21	11.7%
	Other:	0	0.0%	4	2.2%

5.2.6.2 Debt

To understand students' expected income and hours, it was important to establish the students' expected debt from their optometry degree. The mode (26.8%) of students studying in Canada expected $66,000-$100,000 CAD of debt, with the second-highest frequency (19.6%) of students having no debt at all (Table 5-47). Many students studying in the USA (28.3%) had expected $266,000+ CAD of debt. However, since the questionnaire did not

provide options higher than that, it cannot be stated whether debt responses followed a normal distribution and where the peak if that distribution would have been. The second highest response (17.2%) was $199,000-$232,000 CAD. Chi-square testing was not used as assumptions regarding expected cell counts were not met. As revealed visually, but not statistically, in the bar graph (Figure 5-11), students studying in the USA have a higher debt than students studying in Canada.

Table 5-47 Students expected debt from their optometry program, separated by the country in which they studied.

		Country			
		Canada		The United States of America	
		Count	Valid %	Count	Valid %
Optometry degree student debt	No debt	11	19.6%	17	9.4%
	US $1- $25,000 (CAD $1.33-$33,189)	9	16.1%	1	0.6%
	US $25,000-$50,000 (CAD $33,189-$66,378)	6	10.7%	3	1.7%
	US $50,000-$75,000 (CAD $66,378-$99,566)	15	26.8%	5	2.8%
	US $75,000-$100,000 (CAD $99,566-$132,755)	8	14.3%	9	5.0%
	US $100,000-$125,000 (CAD $132,755-$165,944)	2	3.6%	17	9.4%
	US $125,000-$150,000 (CAD $165,944-$199,133)	3	5.4%	21	11.7%
	US $150,000-$175,000 (CAD $199,133-$232,321)	1	1.8%	31	17.2%
	US $175,000-$200,000 (CAD $232,321-$265,510)	0	0.0%	25	13.9%
	US $200,000+ (CAD $265,510+)	1	1.8%	51	28.3%

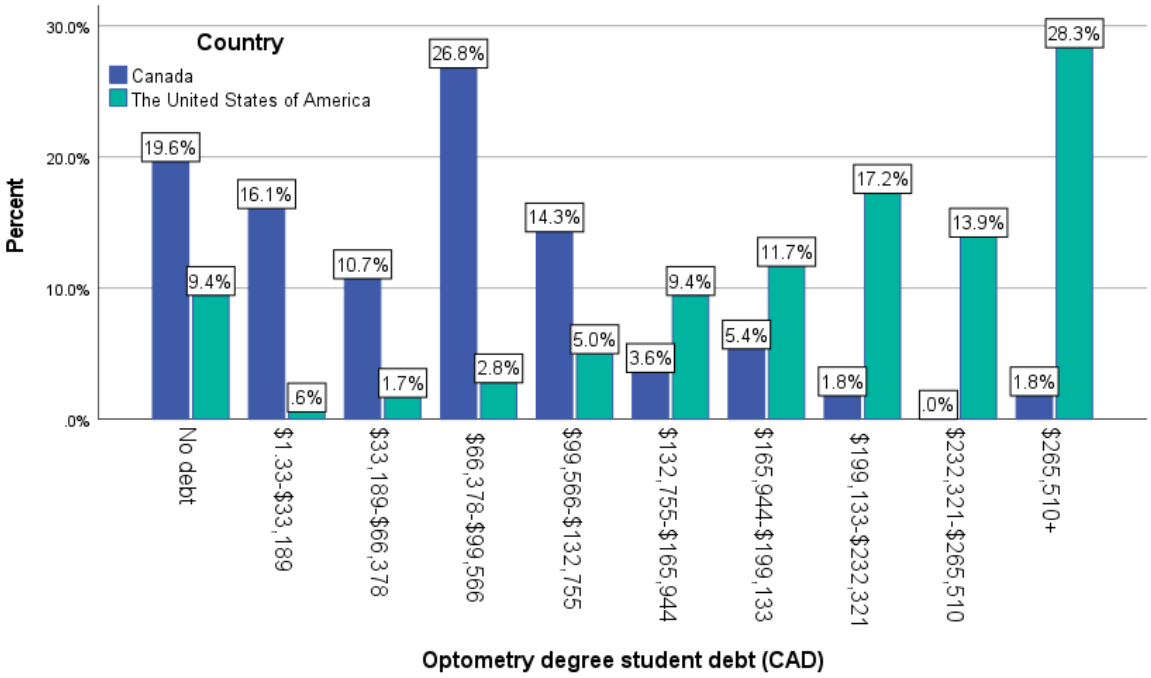

Figure 5-11 Student's expected debt from their optometry program, separated by country.

5.2.6.3 Income

Like student debt expectations, the expected gross income within the student's first year is different between students studying in Canada and the USA. The mode for students in Canada (37.5%) was approximately $80,000-$106, 000 CAD, whereas the mode for students in the USA (41.1%) was $133,000-$159,000 (Table 5-48, Figure 5-12). Chi-square testing could not be conducted as assumptions regarding expected cell counts were not met, although visual differences are seen in Figure 5-12.

Table 5-48 Students' expected income within their first year upon graduation, separated by country.

		Country			
		Canada		The United States of America	
		Count	Valid %	Count	Valid %
Expected gross income	< $60,000 US (< $79,653 CAD)	6	10.7%	2	1.1%
	$60,000-$80,000 US ($79,653-$106,204 CAD)	21	37.5%	16	8.9%
	$80,000-$100,000 US ($106,204-$132,755 CAD)	15	26.8%	52	28.9%
	$100,000-$120,000 US ($132,755- $159,306 CAD)	6	10.7%	74	41.1%
	$120,000-$140,000 US ($159,306-$185,857 CAD)	0	0.0%	14	7.8%
	$140,000-$160,000 US ($185,857-$212,408 CAD)	0	0.0%	3	1.7%
	$160,000+ US ($212,408+ CAD)	1	1.8%	1	0.6%
	I don't know	7	12.5%	18	10.0%

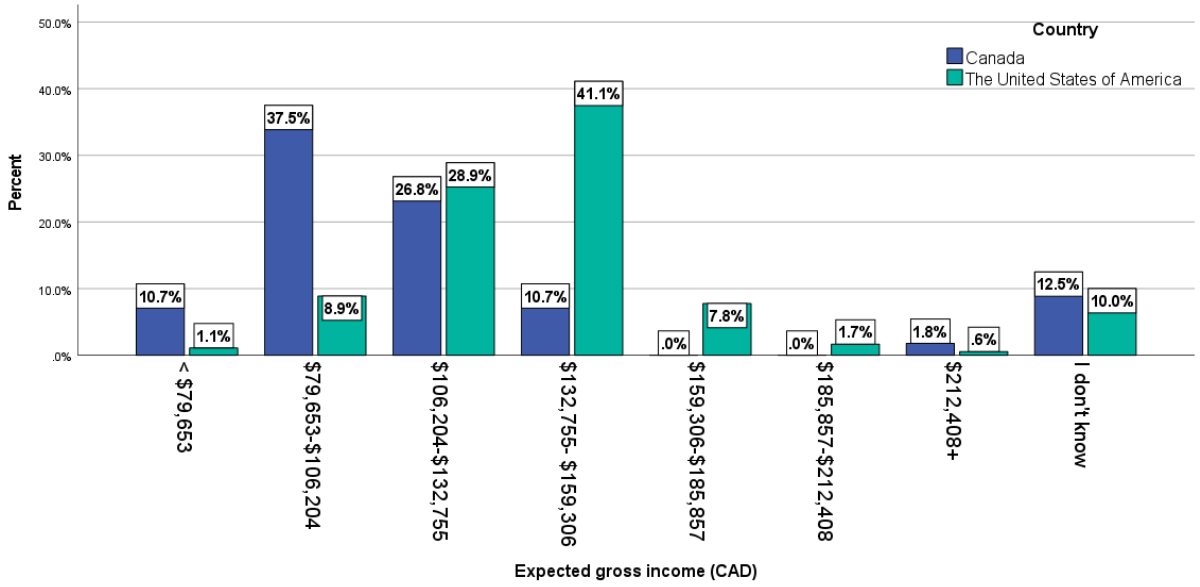

Figure 5-12 Students' expected income upon graduation, separated by country.

5.2.6.4 Hours

Students in the USA also plan on working slightly more hours than students in Canada although at least three quarters of all students plan on working 31-50 hours per week. Students in Canada sway more to the *31-40 hours* (55.4%) whereas students in the USA are swayed slightly more to *41-50 hours (42.8%)*. Chi-square testing could not be conducted as assumptions were not met. A full summary of students' expected wages is in Table 5-49 and graphically represented in Figure 5-13.

Table 5-49 Optometry students expected number of hours of work per week, separated by country.

		Country			
		Canada		The United States of America	
		Count	Valid %	Count	Valid %
Expected # of hours/ wk	Less than 10	0	0.0%	0	0.0%
	11-20 hours	3	5.4%	2	1.1%
	21-30 hours	6	10.7%	3	1.7%
	31-40 hours	31	55.4%	68	37.8%
	41-50 hours	12	21.4%	77	42.8%
	50+ hours	3	5.4%	18	10.0%
	I don't know	1	1.8%	12	6.7%

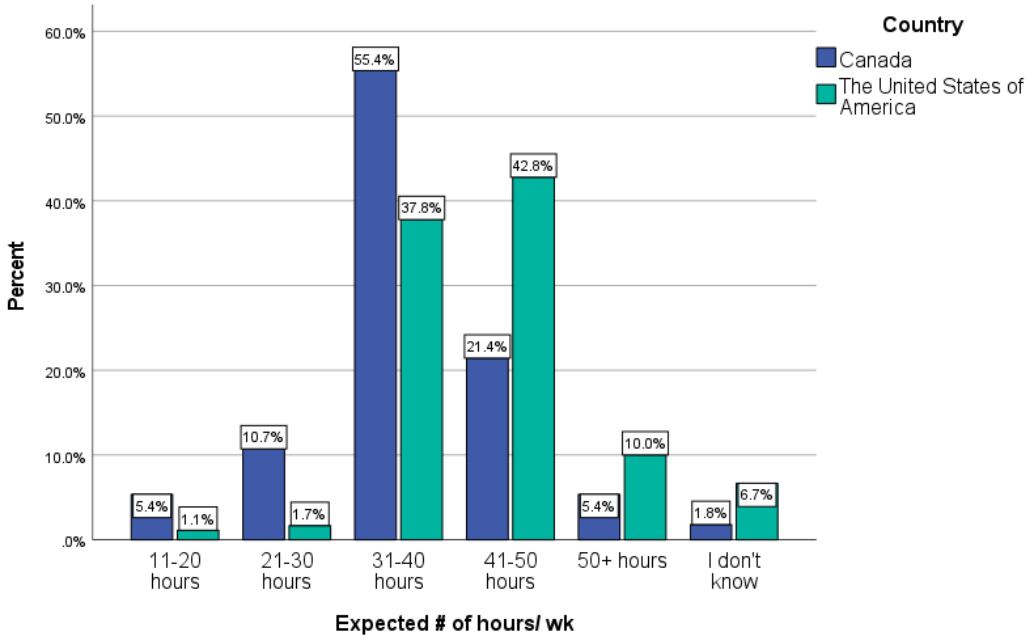

Figure 5-13 Optometry students expected number of hours of work per week when beginning their career, separated by country.

5.2.6.5 Practice Ownership

Knowing that most of the students studying in both countries were interested in *Private practice* and that students in both countries, but especially in the USA, had high debt and income expectations, it is important to understand students' expectations on practice ownership. Students in both countries were more interested in owning (28.4%) or co-owning (45.7%) a practice or practices (Table 5-50). Of those interested in practice ownership, 81.2% were interested to *Buy an existing practice* instead of *Start a practice from scratch* (Table 5-51). Responses divided by country can be seen in **Appendix E.**

Table 5-50 The number and percentage of students who intend to own or co-own a practice/ practices.

Intention to own a practice/ practices

		Frequency	Percent	Valid Percent
Valid	No	13	5.0	5.6
	Yes	66	25.3	28.4
	I would like to co-own a practice	106	40.6	45.7
	I don't know	47	18.0	20.3
	Total	232	88.9	100.0
Missing	System	29	11.1	
Total		261	100.0	

Table 5-51 The number and percentage of students who intend to own a practice on buying an existing practice or starting one from scratch.

Buy existing or start from scratch

		Frequency	Percent	Valid Percent
Valid	Buy an existing practice	138	52.9	81.2
	Start a practice from scratch	32	12.3	18.8
	Total	170	65.1	100.0
Missing	System	91	34.9	
Total		261	100.0	

5.2.6.6 Location

Students were asked to check all options that applied when choosing a location to practice. Students in both countries had the same top five reasons for choosing practice location, although in different order (Table 5-52). The top five reasons for choosing practice location were: *Proximity to family, Job prospects/ availability, Proximity to friends, Proximity to significant other*, and *Cost of living.*

Table 5-52 Students' reasons for choosing their practice location.

	Country			
	Canada		The United States of America	
	Count	Valid %	Count	Valid %
Proximity to family	46	83.6%	145	81.9%
Job prospects/ availability	36	65.5%	108	61.0%
Proximity to friends	31	56.4%	70	39.5%
Proximity to significant other	27	49.1%	73	41.2%
Cost of living	19	34.5%	99	55.9%
Prefer living in an urban area	16	29.1%	49	27.7%
Job type matches what I am looking for	16	29.1%	53	29.9%
Demand/ filling in a void	13	23.6%	35	19.8%
Earning potential/ benefits including optometric reimbursement	11	20.0%	59	33.3%
Prefer living in a rural area	10	18.2%	45	25.4%
Proximity to current or previous place of education	8	14.5%	27	15.3%
Other:	4	7.3%	3	1.7%

Chapter 6
Discussion

6.1 Pilot Study

The study met the two main aims:

i. to develop a suitable universal questionnaire and implement both online and pen-and-paper methods.

ii. to assess and compare the attitudes towards optometry of first- and fourth-year optometry students at the University of Waterloo, including career motivations, university motivations, exposure in the field and its influence, and future expectations.

The study also revealed insightful student responses that contributed to modifications to the questionnaire for the main study, such as questions relating to changes in work hours and questions relating to how exposure to optometry influenced their choice of optometry as a career.

6.1.1 Response rate

In-class distribution of pen-and-paper questionnaires proved to be the most effective form of distribution regarding response rate. Eighty-eight percent of first-year students participated compared to 43% of fourth-year students who were largely contacted by e-mail for participation. Out of the 60 students who were contacted by e-mail, only 8 (13%) chose to participate. Although it was known that the main study would be an online survey, a pen-and-paper method was chosen at this stage as it enabled the researchers to have a large cohort review the questionnaire to make more insightful amendments for the main survey.

- Based on these response rates, an incentive was added to the main study to increase the response rate.

6.1.2 Demographics

Most students were *Female* (73%), spoke *English* (96%) as a primary language, and came from *Ontario* (69%). The higher proportion of female-identified students is consistent with CAOS data (46,52,53), and the sample was deemed to be representative of the University of Waterloo optometry student population. First- and fourth-year students were chosen to participate to compare responses over the course of a program. The demographics of the two cohorts were very similar, other than their current age. As expected, fourth-year students were three years older, on average. The ages reported suggest that most students entered the optometry program directly after completing prerequisite study.

- This question was changed to an open response in the main study to enable more accurate ages, and to establish ages of the first-year entrants into the program.

6.1.3 Career Motivations

When considering choice of career, optometry was the first choice for the majority of both years and was more so for first-year students (91%) than fourth-year students (77%). Both cohorts had the same top reason-*Good Work-life balance*- and the same top five reasons for choosing optometry, although in slightly different orders. The inter-year ranking difference may be function of years of experience, resulting interests or shifting memory, which could introduce recall bias.

This finding of shifting motivations with age and/ or experience is supported by other studies. In 2012, Lordly and Dubé reported that dietician students at the beginning of their studies found economic rewards more motivating. In contrast, job satisfaction was more important to more experienced students. (54) As medicine is a longer degree, the circumstances and experiences of many students' personal lives change, affecting their motivation and career expectations. (27,55) For example, Gąsiorowski et al. found that Polish medical students in first-year medicine reported that they were more likely to emigrate than

sixth-year students. Sixth-year students wanted to stay in Poland as many had changed their marital status during training and had established roots in their communities. (27)

- Students' *Other* responses contributed to the amendment of the main study by adding *Outreach opportunities, Interest in optics, Enjoy working with people* and *Inherit/ work in family business* selections.

6.1.4 University Motivations

Almost all students agreed that the University of Waterloo was their first-choice institution. This is not surprising because the University of Waterloo has the only anglophone optometry school in Canada, the application process is highly competitive, tuition is markedly lower than American optometry programs, and the applicants may see this institution as their only option. This reasoning aligns with their most frequent reasons for choosing the University of Waterloo: *The optometry program is the only one available in my country taught in a language I am fluent in* and *Program cost*. This finding is also supported by recent data in the Canadian Optometry Graduate Workforce Report 2019 which showed that Waterloo graduates had an average debt of $84,580 CAD, whereas Canadian students studying in the USA had an average debt of $182,730 CAD, a nearly $100,000 CAD difference. (56) Location was also important to both years which was consistent with three previous optometry studies from other countries. (31-33)

- The student's *Other* responses helped form selections for the main study including *Influence of my optometrist* and *Welcome day/ Interview day.*

6.1.5 Exposure and Influence

The students' exposure to optometry, vision correction and eye conditions were investigated. 96% of students had some level of work experience in the optometry field, either from job shadowing, volunteer or paid positions, or from a combination; 86% of students wore glasses, contact lenses or both; 73% of students had an eye condition or had a close relative

or friend with an eye condition; and 19% of students had a close relative or friend that was an optometrist. It is unknown whether these experiences influenced the students to choose optometry as a career. The influence was only specifically asked for students who stated they had work experience of which 81% said it did influence their decision.

- The main study was modified to improve these questions to understand whether having these exposures impacted their career choice.

6.1.6 Future Expectations

Students were mainly interested in *Private practice (Solo or Partnered)* (95%), with *Corporate/Retail Practice* second (40%) and *Hospital Practice* third (30%). The results are different from Haffner and Soroka's 1977 study when only 0.1% were interested in Corporate/retail (Commercial) practice and 6% were interested in Hospital clinic. (34) This could indicate that perceptions about working in Corporate/retail and Hospital practice have changed with time, perhaps due to changes in the modes of practice available to optometrists since then.

The students' expected gross income ranged from *<$60,000* to *$140,00-$160,000 CAD*. With the majority choosing the *$80,000-$100,000 CAD* option. These findings align with the Canadian Optometry Graduate Workforce Report 2019 where reported income was an average of $119,350 CAD. (56) The subjects of that survey ranged from one to five years after graduation, so that figure could be higher for students within their first year out. A small sample of 35 graduates from the class of 2017 indicated they earned an average $74,000 CAD gross annual income upon their first year after graduation. (57)

Students' anticipated hours ranged from *11-20 hours* to *50+ hours* per week. Most students anticipated working *31-40 hours* per week, however there was also a large number that expected to work *41-50 hours*. Half of all students were interested in owning their own practice, with 14% having no interest in practice ownership and 35% unsure.

Proximity to family was the main factor influencing where students would choose their future work location. Fourth-year students also reported *Proximity to friends* and *Proximity to significant other* as important factors, whereas first-year students reported *Job prospects/Job availability* and *Earning potential/Benefits including optometric reimbursement*. Fourth-year students may be more focused on starting a life and 'settling down,' compared to first-year students who may be more focused on the future debt they may have and may not have 'roots' attached to a particular location in the same way fourth-year students might.

6.2 Main Study

The study met the main aim for the Main Study:

(i) To assess and compare the attitudes towards optometry of Canadian and American first-year optometry students, including career motivations, university motivations, exposure in the field and its influence, and future expectations.

And the subsidiary aims of:

a. To assess the importance of location and cost of school as motivators when choosing a university.
b. To assess and compare the financial circumstances of students studying in Canada and the United States of America.

6.2.1 Response Rate

The main study response rate was 28.7%. This was lower than the pilot study, which was mostly conducted in person and wholly used the pen-and-paper method. It is well known that online surveys have a lower response rate than other methods. (45) The response rate was slightly lower than Nulty's suggested online response rate of 33% (45); however, response rates per question decreased as students got further into the questionnaire, suggesting a possible survey fatigue. This dropout was not seen in the pilot study, which had similar numbers of questions and similar timing for completion. Possible reasons for the difference could be that for the pilot study students felt an obligation to complete the questionnaire as

they were handing the completed copy to the researcher, whereas in the main study, students had no external pressures from researchers, professors, or classmates around them. Also, students in the main study could not directly see the end of the questionnaire, in the way students in the pilot study could, and may have become frustrated not knowing how much more they had left to fill out. For these reasons, valid percentages were used instead of total percentages, and for each question the number of students missing from the question is also listed in **Appendix E.**

6.2.2 Demographics

Most students were *Female* (74%), mean age 23 (±2.18 s.d.) years old, and English-speaking (88.8%). The higher proportion of female-identified students is consistent with ASCO data (8), and the sample was deemed representative of the optometry student population. Students came from across Canada and the USA, however the bulk of students listed home addresses as the same states and provinces as the locations of the schools and colleges that participated, suggesting that most students do not travel far from home for school.

6.2.3 Career Motivations: choosing optometry

There was a significant association between the country in which students studied and whether optometry was their first-choice career. Students studying in Canada (90%) were significantly more likely to say that optometry was their first-choice career compared to students studying in the USA (76%). Comparatively, Mashige and Oduntan (2011), Boadi-Kusi et al. (2015), and Osuagwu et al. (2014) reported rates more in line with this study's students enrolled in the USA rather than Canada. (31,33)

The discrepancy in optometry as a first-choice career between students studying in Canada vs the USA could be due to competition between USA optometry programs. Students in the study who did not choose optometry as a first-choice career said they wanted a career in medicine, dentistry, physiotherapy, pharmacy, and architecture, among others; a finding reported elsewhere. (31-33) These other professions are all highly competitive programs,

mainly in healthcare, and so students who cannot be in their first-choice healthcare career may be choosing another that they deem to be similar.

6.2.3.1 Desire to help people

Like other studies of health professions including optometry (26,27,31-34), the *Desire to help people,* an altruistic motivator, was a crucial motivator for optometry students in Canada and the USA. It was the top motivator for students studying in both countries. The pilot data also highly ranked *Desire to help people*, although it was edged out by attaining a good work/life balance, thus University of Waterloo students may be motivated slightly differently than students enrolled in other optometry programs.

6.2.3.2 Work-Life Balance

Students in the USA ranked *Good work-life balance,* an extrinsic motivator*,* second most important reason for choosing optometry, and students in Canada ranked it third. Although work-life balance has not been investigated as a motivator for choosing a career in optometry, CAOS student members felt it was one of the top three priorities when choosing a practice within the first five years of practice, and the top priority following 15-years of practice. (52) Considering the motivations of other health professions, Heiliger et al. in 2000 and de Jong et al. in 2006 found that work-life balance is becoming increasingly important to new medical professionals, and this study shows that this is also true for optometry students. (58,59) In 2014, Du Toit et al. surveyed dental students from 13 countries and found that their overall motivation for choosing dentistry as a career was because the career allowed enough time off for family life. (25) de Jong et al., also found that both male and female health professionals have been opting to work fewer hours, especially if they have young families. (58) Work-life balance has been cited as an important fixture for Generation Y, and self-care and holistic health are important to Generation Z, so one may conclude that work-life balance is not only important to health professionals, but to future workforce generations. Either way, this is important to know because it could suggest a decrease in worked healthcare hours

compared to the public demand. Most students in both countries still expect to work 31-40 and 41-50 hours per week, which would still be considered full-time hours. This suggests that the idea of work-life balance is important but does not mean that to fulfill that requirement students plan on working fewer hours.

6.2.3.3 Interest in Health Care/Vision Science

Students studying in Canada ranked *Interest in healthcare* second and *Interest in eyes and vision* fourth, both of which are intrinsic factors. Students in the USA ranked *Interest in eyes and vision* third and *Interest in healthcare* fourth. Both motivators have not been included in previous optometry studies to make possible comparisons. Interestingly, students in Canada ranked *Interest in eyes and vision* lower than the *Interest in healthcare,* even though 90% of those students reported that optometry (the practice of eye and vision health) was their first-choice career over other medical healthcare professions. General interest in healthcare may be a main motivator for student interest in medicine, dentistry, physiotherapy, pharmacy, and optometry, as opposed to the professions themselves. Even though 21% of students said that optometry was not their first-choice career, no one listed "not getting into their first-choice program" as one of the top five reasons for choosing optometry as a career.

6.2.3.4 Job Availability/Job Security

To round out the top five reasons for choosing optometry as a career, both sets of students ranked *Job availability and job security,* extrinsic factors, as the fifth most important reason. While important, other students have ranked this reason higher. Boadi-Kusi et al. found this to be the top-ranked reason for students in Ghana, and Mashige and Oduntan found it to be second amongst students in South Africa. (31,33)

6.2.3.5 Prestige

Prestige was within the top three motivators in Saudi Arabia and Ghana, but ranked significantly lower in this study (combined, students ranked it 20th). This may be due, in part,

to the longer list of options available to choose from in this study. (32,33) Prestige may have been an important motivating factor in Saudi Arabia because optometry had only recently become a Doctorate program when the survey was conducted; before that, it was a bachelor's program. Thus, the idea of its prestige was still novel. (32) In Canada and the USA, the Doctor of Optometry program is an established degree, and thus may not hold the novel appeal like it possibly did in Saudi Arabia.

Achievement motivators such as *The need to challenge oneself,* or *I have always been good at academics* were 12th and 18th (combined students) respectively on this studies list, suggesting achievement motivators are not as important when choosing optometry. It should be noted that there were fewer achievement motivators on the list than intrinsic and extrinsic.

6.2.4 University Motivations

There was a significant association between students' location of study and whether they were enrolled in their first-choice training institution. 96% of students studying in Canada were enrolled at their first-choice institution compared with 83% in the USA. This study was unique, in comparison to other studies, in relating why optometry students choose their training institution, because most students wanting to study in Canada have only one option based on their preferred language of study. Aside from female optometry students studying in Saudi Arabia (they only had one school to choose from), all other studies investigating choice of institution had choice.

Seventy-nine percent of students studying in Canada applied to only one university, compared to 11% of students studying in the USA. Students in Canada appear to be "putting all their eggs in one basket," perhaps due to the lack of choices in Canada, and/or the lower tuition compared with the USA.

Likely due to the difference in optometry program availability between the two countries there was a difference in how students ranked their reasons for choosing their training

institution. Students in the USA chose their school based on program reputation, location, and impressions of the school on welcome and interview days, whereas students in Canada were more persuaded by program availability, cost, and location.

6.2.4.1 Program reputation

Previous optometry studies have not considered program reputation, university reputation or program curriculum when considering reasons for choosing their training institution. These criteria may have been included in "always wanted to attend here." This option was not included in this study due to its possible ambiguity. Instead, a variety of other options were added in its place. As stated previously, most studies that investigated student choice of university found that university reputation was important. Although university reputation was not in the top five reasons for either group, program reputation was the top reason for students choosing universities in the USA and was the fourth most important for students studying in Canada. The reason why program reputation is more important than university reputation may be that Schools and Colleges of Optometry are often seen as their own entity.

6.2.4.2 The optometry program is the only one available in my country taught in a language I am fluent in

As expected, and based on the pilot study, students studying in Canada's top reason for choosing their specific optometry program was *The optometry program is the only one available in [their] country taught in a language [they] are fluent in*. This strongly suggests that students in Canada are choosing their university based on limited choice rather than for reasons relating to the quality of the program. Students responding to the 2016 CAOS survey suggested that the limited number of Canadian optometry programs was an additional challenge facing aspiring Canadian optometrists. (60)

6.2.4.3 Proximity to home/ Location

Students studying in both countries ranked *Location was close to home* as their second most important factor for choosing an institution. This is interesting because Canada is very large geographically and has only two options for schooling, both in central Canada, meaning that the programs are not close to many Canadians. It was therefore believed that *Location was close to home* would have been a less common answer, and that *The optometry program is the only one available in my country taught in a language I am fluent in* would be a much more common response. However, when considering that 73% of students studying in Canada come from either Ontario or Quebec, the two provinces with the optometry programs, this result no longer seems unusual. The University of Montreal is the only French-speaking school in Canada and accepts students with a university or college-level knowledge of French. So, although the program is open to all Canadians, most entrants are from Quebec and thus are already close to home.

The USA has more optometry schools and colleges spread across 17 states and one unincorporated territory of the country, so access to an optometry program closer to home is readily improved. Some Schools and Colleges of Optometry in the USA have different fees for state residents and non-residents, contributing to a student's choice of location. (8) These reasons, plus the knowledge that proximity to home was identified as a top three reason for program choice in previous investigations of optometry student motivations, (31-33) makes it unsurprising to see that it was important in both Canada and the USA.

The university's location was an essential motivating factor in Saudi Arabia in 2014 because, at the time of the study, females in Saudi Arabia were not allowed to drive. Female students relied on male relatives to drive them, thus proximity mattered. (32) This may be a less important factor now that women can drive in Saudi Arabia.

6.2.4.4 Program Cost

It is not surprising that *Program cost* was a factor for students in both countries, as well as in previous studies, as professional courses can be costly, and student debt increases significantly depending on school and location. Students studying in Canada ranked *Program cost* third, and students studying in the USA ranked it fifth. This is interesting because optometry programs are more expensive in the USA than in Canada, and thus the relative weighting might be expected to be opposite. In the 2018 CAOS survey, the mean estimated student debt of Canadian optometry students studying in Canada was $82,670 CAD, while those studying in the USA was $242,000 CAD. (46) A more recent and larger CAOS endeavor surveyed 2019 graduates and found that students who trained at the University of Waterloo had an average debt of $84,580 CAD, while students who trained in the United States had an average debt of $182,730 CAD. (56) Perhaps students studying in Canada are acutely aware that their alternative option of training in the USA will amount to substantially more debt, whereas even though students in the USA know that tuition is high, they still have options from which to choose within their preferred price range (e.g. public, private, state). American students studying in the United States may also have better financial support than Canadian students.

6.2.4.5 Welcome day/Interview day

Optometry programs usually have welcome days or interview days to meet potential students and allow both the students and the university staff to see if the school is right for the student. Students in the USA ranked this as their third most important reason for choosing their university, by comparison, students in Canada ranked it ninth. The importance of a *Welcome day/Interview day* is very different between the two countries; however, this could be due to the lack of choice in Canada. Mashige and Oduntan, and Osuagwu et al. also found open day/induction day of little influence.

Discovering which influences are more important in choosing a career or institution can help recruitment and admissions staff focus on these factors when considering applicant growth. This is especially important in the USA where there is a need to increase the pool of quality applicants.

6.2.5 Exposure to the field/Influences

There are numerous influences involved in choosing optometry as a career. This study found that strong influencers were, in ranking order: optometry-related work; a close relative or friend being an optometrist or in an eye-related field; and personal experience with prescription spectacles or contact lenses. Experience with other eye conditions (self or close friends and family) was a moderate influencer, and eye-related research had limited impact. Work experience has been known to influence career choices. (61) As a result, many optometry schools ask about an applicant's work experience in the application process. The finding that work experience was a key factor in these respondents' decision to choose optometry aligns with two studies of dentistry students.(30,62)

This study showed that 29% of students had a parent, close relative or close friend who was an optometrist, of which 80% said it influenced their decision to choose optometry. This may show that although not many students have close exposure to an optometrist, those that do are highly influenced by them.

Exposure to a career in childhood and adolescence can also shape a person's decision to pursue a career. When investigating high school students' knowledge and perceptions of optometry before and after a well-developed slideshow on the topic, Harris et al. (2005) found that the students knew far more about the subject matter and many were more interested in and were even considering pursuing it as a career because of the presentation. (63)

Although students were not specifically asked about childhood or adolescent experiences in this study, students were asked about exposure to vision correction and eye conditions. 82%

of students wore glasses, contact lenses or both, and of that 68% said it influenced their decision to choose optometry. 72% either had an eye condition outside of wearing glasses or knew someone close to them who had an eye condition, and of that group, 43% said it influenced their decision to choose optometry. Exposure to an eye condition was the least influential on career choice. 30 students (13%) had experience in eye or vision research, of whom 67% said it influenced their decision to choose optometry.

This study showed that, when trying to recruit students, work experience and close relationships with an optometrist are the best influencers, whereas having or knowing someone close who has an eye condition (outside of glasses wear) is the least influential. While only some people have close family or friends who are optometrists, the highly positive impact of knowing an optometrist should be considered by optometry school administrators when designing their recruitment and admission tools, such as mentorship programs.

6.2.6 Expectations:

When entering, and throughout the optometry program, students have perceptions and expectations of their career, including mode of practice, salary, practice ownership, location, and hours.

6.2.6.1 Practice Mode

Students studying in both countries (95% Canada, 92% USA) predominantly planned on working in *Private practice (Solo or Partnered),* followed by *Hospital Practice* for students studying in Canada (32%) and *Corporate/Retail practice* for students studying in the USA (31%), with these two options switched for second/third in each country. As a comparison, in 2018, CAOS reported that most optometry students in Canada were interested in partnered/group practice (80.2%) followed by individual private practice (49.6%) and large

group practice (33.2%), with corporate or retail practice at 16.4%. In their study, very few students planned to work in academia, consultancy, or industrial optometry. (46) Silvermann et al. (2004) surveyed optometry students in six states across the United States regarding students' expectations of salary, mode of practice and practice ownership. (64). When asked to choose their top three practice modes, joining an existing solo practice, corporate group practice, and corporate solo practice were the top choices. In comparison, in 1977, Haffner and Soroka found that 90% of students believed that the quality of professional optometric services would deteriorate in commercial (corporate) settings, and only 0.1% of students expected to work in commercial settings. (34) Thus, corporate and retail practice popularity has changed dramatically since 1977. Like Silvermann et al., this study found it was listed in the top three but was still much lower in popularity than private practice.

Students studying in both countries were highly interested in *Volunteer work*, with 39% of students in Canada and 36% of students in the USA confirming interest. 27% of students in Canada and 32% of students in the USA were interested in *Residency* positions. 13% of students in both countries were interested in State, Provincial, or Federal Optometric associations. The amount of interest in these activities could be related to Generation Y and Z's need to work in a place that has values that align with their own and their need for work to be meaningful.

6.2.6.2 Debt

The differences in average optometry student debt of students studying in Canada and the United States have been well documented and as in previous studies, this study found that students in Canada expect lower debt upon graduation than students studying in the USA. (56) The amount of debt may relate to why students studying in Canada find program cost to be a top priority, as well as why those students apply only to one optometry program, and that being in Canada. It is not clear whether a perception of high student debt from studying optometry in the USA acts as a discouragement for prospective students.

Because so many students in the USA reported expected debt in the highest bracket ($266,000+CAD), it is difficult to know the true peak. In future surveys, extended brackets should be included for a more accurate idea of student debt in the USA.

6.2.6.3 Income

Just as students in the USA had higher debts, they expected higher wages. Students in the USA expected wages with a peak in the $133,000-$159,000 CAD bracket (41%), while students in Canada had a lower peak at $80,000-$106,000 CAD (38%).

Both expected debt and income can affect a new optometrist's choices post-graduation and are extremely important to understand. For example, concluding their study, Silvermann et al. suggested that corporate practice modes may be increasing in popularity as they may have a more attractive starting salary than private practices. (64) Those authors found a disconnect between what students were expecting to be paid and what employers were willing to pay upon completing the optometry degree. (64) Oduntan et al. in 2007 found that South African students, especially men, were interested in purchasing a solo-practice, but were expecting to buy into franchises instead due to financial constraints after graduation. (65)

6.2.6.4 Hours

Students in both countries reported a range of expected work hours from *11-20 hours* and up to *50+ hours* per week, with a handful of students unsure. The most popular response for students in Canada was *31-40 hours*/week, and for students in the USA was *41-50 hours*/week. This could also account for the discrepancy in expressed expected income between students in the two countries and may reflect a need to earn a higher salary to pay off accumulated debt.

6.2.6.5 Practice Ownership

Nearly three-quarters of all students were interested in owning or co-owning a practice. This matches the entrepreneurial nature of Generation Y. This study found a slightly higher

percentage than that previously found by CAOS, who reported that 66% of students were interested in owning their own practice, with most hoping to purchase within 5-9 years after graduation. (52) Most students expected to become associates in practices upon graduation first, and to become partners in small group practices or solo owners by retirement. Only a few students were interested in corporate settings upon graduation or retirement. (52) In this study, students were interested in co-owning (46%) a practice more than owning one as an individual (28%). Though not studied here, this may be in line with work-life balance in terms of sharing the workload, or potentially afford optometrists earlier buy-ins regardless of graduating with large debts. Of the students interested in owning a practice, 81% were interested in buying an existing practice.

6.2.6.6 Location

Students also have an expectation for the location in which they wish to live. Students from both countries had the same top five reasons for choosing their future location of practice, although they were ranked differently. Both countries stated the number one reason for choosing their location was *Proximity to family*, followed by *Job prospects/availability*. Students studying in Canada then said *Proximity to friends, Proximity to significant other* and *Cost of living*, respectively. Students in the USA said *Cost of living*, then *Proximity to significant other,* then *Proximity to friends*.

Studies in Canada by CAOS and studies in South Africa by Oduntan et al. and Mashige et al. found that students preferred to live in urban areas instead of rural. (46,66) Most Canadians live in urban areas, so it is expected that most Canadian optometry students would want to work in urban areas. However, there is some concern that urban areas, specifically metropolitan areas, are becoming over-saturated, whereas some rural areas need optometrists. In recent years (2019 and 2020), the CAOS survey found that students are becoming less interested in living in metropolitan areas (1,000,000+ population), which was the most popular choice in 2018. (46,52,53) Instead, they are opting for middle-sized cities (50,000-500,000 population). (52,53) Interestingly, Mashige et al. found that South African students

were more inclined to work in rural areas if there were financial incentives and safety was ensured. (66) 75% of Canadian optometry students were willing to relocate for 1-2 years to a rural location, though it was suggested that salary would be influential. (52) Students in this study preferred living in an urban area over rural, though neither were included in the list of the top five reasons, suggesting they are not as important determinants as family, friends and job availability.

Optometrists are more likely to invest and devote themselves to a practice and be involved in a community when their expectations are being met. There is, of course, always a little give and take, but the more expectations that can be met, the more satisfied the student will be. For example, students may tolerate working further from their family if their preferences are met regarding wage, hours, and mode of practice. This information may be especially important to optometrists in need of associates in rural areas to attract them to those areas. Understanding graduating students' financial circumstances and how that might impact their preferred modes of practice or desire for practice ownership may also be valuable information to other stakeholders, such as provincial associations or healthcare bodies. One example would be for optical associations to guide a transition between retiring optometrists and new optometrists looking to purchase.

6.3 Survey Development/ Structure

As this survey was so in-depth, explored a wide variety of topics, and was unlike any other previous survey done on this topic, there was a learning curve involved in its development.

Validity was ensured by content and face validity methods. Experts in the field of optometry and a small sample of optometry students in Canada were used to ensure the questions were accurate. Having a small sample of students studying in the USA for the pilot study could have made the questions more appropriate for an American audience, especially when viewing questions on debt and expected income.

The survey was judged on reliability by inter-rater/inter-observer reliability. The results were as expected, based on prior studies and the circumstances of the optometry field at this time. Test-retest reliability was not tested at this time but would be another form of measuring reliability.

The largest concern was the lower response rate and response dropout when conducting the online survey. The lower the response rate, the greater the chance of non-representation bias. The current questionnaire was long because there was very little information on the topics previously. Future research should focus on smaller sections of the survey to make completion time shorter. It would have also helped if an indication of how far along the students were into the survey was given to the responder, as they may have been less inclined to give up knowing they only had a few more questions left. Options were very specific, as the goal was to have as accurate of responses as possible, but perhaps the extra wording deterred students from answering the questions. This was seen when asking about student motivations for choosing optometry; this was the most in-depth question and had the largest dropout.

Another option would have been to have students complete the survey at the end of a lecture instead of on their own. Seeing other students sitting at their computers completing it may give the student that extra patience needed to complete it. There is an option in REDCAP® which blocks movement to the next set of questions until the current questions are completed. This was not used as it was felt it would have encouraged drop out and would not have helped the response rate.

Although the questionnaire was tested online prior to administration, two questions did not function properly. The questions were “In how many years do you intend to own your own practice?” and “Do you intend to own an Optical Dispensary (an eyewear shop) as part of your practice?” This matter was noticed early on when responses were coming in, though was not corrected to ensure each student was given the same list of questions. This could have been corrected if the pilot test were conducted in REDCap®.

Lastly, some of the wording of the questions could be fine-tuned and some could have more options. As previously stated, the question regarding student expected debt did not have enough options. Students may have also interpreted its meaning differently. The question stated, “How much student debt do you expect to have from your Optometry degree?” Some students may have interpreted this as optometry tuition alone while others may have included debt from their undergraduate degree if they did not consider that to be separate. There is a very particular balance that needs to be met between being specific and writing lengthy questions/answers.

Chapter 7
Conclusion

7.1 Implications

This thesis sheds light on aspects of student motivations and expectations for a career as an optometrist. A great wealth of data has been collected, and, with it, an opportunity for a deeper analysis of the findings. This thesis only highlights a portion of the collected data, but already the findings reveal unknown features of the current North American student population in optometry and suggests new areas that require closer investigation.

While it may not be surprising that the majority of optometry students have optometry as their first-choice career, this finding provides valuable information for recruitment teams because it suggests that it may be less necessary to 'sell' optometry as a career to applicants if they are already sold on the idea, and, instead, more necessary to give guidance on future options within the career. For American schools, which are experiencing a recruitment challenge from an insufficient pool of candidates, this finding suggests that to expand their recruitment pool a greater focus should be made on those possible applicants who do not have optometry as their first choice but may be interested in healthcare regardless.

For Canada, a key finding is that the lack of alternatives in possible training institutions is having a direct impact on student admission application profiles. Nearly all students at the two Canadian schools applied only to the school they were attending. Crucially, university and program reputation were of less interest to these students. In contrast, program reputation was a key feature for applicants to the American schools. It is not clear what the impact of this lack of competition is having on the Canadian schools, because they are not recruiting from the same applicant pool as the American schools. It serves as a caution for the Canadian universities, however, that they are not considered by potential applicants as being the best to attend, but merely the most convenient and financially feasible.

The findings on student motivations for their career are very reassuring – the main motive for becoming optometrists was the desire to help others. Central to the work of all healthcare professionals is the concept of service to others. This is encapsulated in the code of ethics of the Canadian Association of Optometrists which has as its first requirement “To accept as one's primary concern and responsibility the visual welfare of all patients”. (67) The fact that optometry students also share this ethic is heartening for the future character of the profession as being caring and patient-centred.

Training institutions and professional bodies should be looking for opportunities to partner in developing student preparation for their expected careers. The students in the study had a predominant preference for working in private practice, particularly with practice ownership. In view of the preference for self-employment, it seems clear that this should include guidance on entrepreneurship and business skills. A curriculum review of this area would be beneficial for all of the training institutions to ensure that time is given in the student timetable for these courses. Professional bodies may also wish to consider whether a mentoring program would be of benefit to assist recently qualified optometrists in developing these business skills.

Student debt and income expectations differed sharply between Canada and the USA. These findings confirm the general expectation for higher tuition and higher debts in the USA, while also emphasising the ‘value for money’ of the current Canadian tuition fees. The Canadian institutions may interpret this as giving them more room to increase tuition fees without affecting their competitiveness, but that should be tempered by the finding that program quality expectations for the two courses are low and may lead to a poorer competitive position in the end. A broader range of training institutions in Canada would be beneficial for both potential applicants and for the current institutions by establishing a competitive aspect to student recruitment in Canada. This would be beside other benefits to the optometry profession in Canada generally from increased scholarship, increased academic job opportunities, and a raised education profile for the profession. It would benefit students as they would be able to stay closer to home, have other financially feasible options, not have the inconvenience of gaining a study visa, or of changing currencies and bank accounts. This may also have a further benefit by

attracting new student applications from those who may not have considered optometry otherwise.

The results from this thesis stand as a starting point for future studies, while also revealing the surprising lack of such studies among optometry students. The assessment of student attitudes and expectations has been a common theme for many other health professions and has likely enabled better workforce planning and curriculum development as a result. Future studies could narrow their focus to specific aspects of student attitudes and expectation, or widen geographically, to allow a broader comparison between optometry students in other countries outside of North America. It would be interesting to see the similarities and differences between countries, and how those might reflect differences in educational pathways, professional scope of practice, or other factors.

7.2 Limitations

There were several methodology decisions that may have had an effect on this study.

- An online survey methodology was used even though this is known to have a lower response rate that allows a greater chance of non-representation and non-response bias in the population sample. However, an online method was chosen because of its low cost and efficient method of delivery, which matched better with the location distribution of potential respondents.
- It was impossible for the main investigator (BS) to control recruitment and oversee the procedure for all students in a large international study. Instead, the researcher relied heavily on local correspondents to communicate the project to their students using the designated material. This could have created bias towards schools with more enthusiastic local representatives, for example, skewing the demographic profile.
- The length of the survey may have led some students to drop out mid-study, although there may have been other reasons of which the researchers may not be aware. This drop-off may have produced an unknown bias for questions towards the end of the survey. Students did not have the opportunity to disclose why they chose to stop.

- If the length of the survey or the complexity of some of the questions was at fault for the drop-out, simplifying or eliminating some of the questions and responses may improve the response rate, and thus the overall validity of the responses. The goal of this study was to collect a wide variety of data so that future studies could focus on specific sections that were interesting and important within this study.
- As the questionnaire was multi-national there were some responses that only pertained to one country. Specifically, the question regarding students' motivations for choosing their training institution included the response "The optometry program is the only one available in my country taught in a language I am fluent in" did not pertain to students in the USA. By contrast, it was the highest ranked answer in Canada. As a result, it is difficult to directly compare institution motivations between the two countries, because this one option was relevant to 21% of the one comparison group but not applicable to the other (the USA students essentially had one less motivator to choose from). The decision whether to include this response in the final iteration of the survey was weighed by the investigators. Since some students in Canada brought up "the lack of options" in the "Other" section themselves, it was assurance the response was important to Canadian students and important to maintain when surveying their institution motivations.

Chapter 8
Author's personal reflection

To understand the background of this research, it is important to share my own story of how I chose optometry as a career and why I chose where to attend. I, like the students in this study, was born and raised in North America. I had an undergraduate degree from a Canadian university that included the course pre-requisites needed to enter optometry at a North American university. I had written the Optometry Admission Test and I was trying to choose where to train.

I had decided to pursue a career in Optometry in high school, although the moment I thought the eye was "cool" happened when I was younger. When I was around 10 years old, my grandmother had to get her cataracts removed. She spent time researching the best surgeon and flew from Ontario to Alberta for the surgery. As part of her experience, she was given a VHS copy of her operation. When she returned, excited by her new-found sight, she gathered our family together and sat us down to watch the procedure. I remember my family members being disgusted, but, for me, I could not believe that there was a tool that could suck this cloudy, white, cataract out of the eye, like a vacuum cleaner. My spark for optometry was ignited!

A similar spark arose in high school when dissecting bovine eyes in the optics component of physics class. I was amazed that what looked to be such simple structures were accountable for all that I could see. You would think from these experiences, I would have wanted to be an ophthalmologist, but I had my sights set on optometry.

Choosing where to train was a much more complicated process for me than choosing my career. I knew going to the University of Waterloo was the conventional option for people in Canada, although I also knew how competitive it was to get in. I was an above-average student with a newly diagnosed learning disability, and I felt nervous about attending a school at which even highly intelligent people did not always get in. I was also not keen on studying close to home, having grown up near Waterloo.

I applied to the University of Waterloo, along with schools in the USA and the UK. I ended up choosing Cardiff University in Wales, UK. I had a friend that was planning on going there and my long-term boyfriend at the time (now husband) was able to transfer his physiotherapy credentials to the UK, which would have been more difficult for the USA. In any case, I did not get into the University of Waterloo, Doctor of Optometry program. If I did, I am not sure what University I would have chosen, but I know the path I chose brought me to this Masters and research.

As a result of working on this Masters thesis, I have thought long and hard over the past three years, about my reasons for choosing a career in optometry and for choosing my training institution.

My top five reasons for choosing optometry as a career are:

1. Experience with optometry or eyecare as a child or adolescent that made you interested in a career
2. Interest in eyes and vision
3. Work-Life Balance
4. Desire to help people
5. The need to challenge oneself

My top five reasons for choosing my training institution are:

1. First choice was not available
2. Influences of a friend or family
3. “Gut feeling”
4. Influence of media or promotional material
5. Other: My partner could transfer his professional credentials to the country I chose to study in.

My choices are different from the majority of students involved in this study. Maybe it is because I have had more time to think about each response, or maybe I have a different student

profile. Optometry was my first-choice career and, as far as I was concerned, my only choice. I had no interest in becoming a medical doctor or any other form of health care practitioner. I had made up my mind and I was going to pursue optometry by any means necessary.

Like other members of Generation Y, work-life balance is important to me. I would like to work full-time hours, but I also want to enjoy time off. I feel that a desire to help people is an important part of optometry, but I equally think that you can have a desire to help people in other careers and it was not my deciding factor for choosing my career. I have always pushed myself to be better, and I wanted to work in a career that did the same. Perhaps job security and job availability were not as important to me because I have always lived in rural towns that needed health care providers.

I did not want to go to school close to home (nor was I accepted) so I travelled. I had never been to Wales and never attended an open or welcome day until my first week of optometry school, so my choices were based mainly on what I could find on the internet and my gut feeling (it had not proven me wrong before, so I knew it was reliable). I did not know my university or program's reputation, but when I look back now, I am curious why I never thought to investigate, though I was lucky to be in a reputable program.

I had work experience in optometry offices prior to entering my program. It did not influence me to choose optometry, as I had already had my heart set on that career, but it did reaffirm my decision. I did not have a vision correction (although as a child I desperately wanted glasses) or eye conditions and, aside from my grandmother's cataracts, I did not know anyone with eye conditions. Like some of my survey counterparts, my grandmother's cataracts and later macular degeneration had an influence on me for choosing a career in optometry.

Like the majority of survey respondents, I planned on entering private practice, as it was the only mode of practice of which I knew. Since entering the optometry program, I have had mentors that have participated in other modes of practice at the same time, and I feel I might be interested in exploring my options in the field as well, possibly with home visits, industry-based work, and

I have already participated in academia. I had initially never intended to own my own practice, unlike my counterparts, although that has since changed with experience.

Although I share some similarities with the survey respondents, I was surprised by the difference in how I would have responded compared to their responses. There could be many reasons for the difference, for example, I am older and possibly have recall bias, but I do believe that students who have encountered a different path like I did, might have different motivations and expectations, which will also contribute to the optometry professional identity. This too is something that could be researched.

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Appendix A

Pilot Survey (promotional material followed by questionnaire)

1) Email Recruitment:

Subject Line: Why did you choose Optometry as a career? We are looking for your help.

Why did you choose Optometry?

Why did you choose the University of Waterloo?

We want to hear from **you.**

Hello,

I am conducting a survey on optometry students' motivations, influences and expectations for choosing optometry as a career and choosing the University of Waterloo for their training.

The fourth-year students on campus have already completed the survey (and can disregard this e-mail) however **we want to hear from those of you that are currently completing your externship.**

Attached are the details of the survey. Participation is voluntary. If you are interested in participating **all I need from you is your externship placement address.**

I will send the survey through the post with a pre-paid envelop to send the survey back.

Thank you very much for your participation.

Sincerely,

Brianna Samson

Master of Vision Science Candidate

University of Waterloo, School of Optometry and Vision Science

bc2hunte@uwaterloo.ca

Under the supervision of: Dr. Paul J. Murphy and Dr. Shamroze Khan

2) E-mail attachment and letter that will be sent with survey through the post

Dear fourth-year student,

My name is Brianna Samson and I am a Master's candidate at the University of Waterloo School of Optometry and Vision Science. I am writing to invite you to participate in a study I am conducting on why optometry students choose optometry as a career.

The attached questionnaire takes approximately 15-20 minutes to complete and relates to your influences and motivations for choosing optometry at the University of Waterloo as well as your future expectations of this career. All answers will be anonymous and confidential as I will not be asking your name. You are welcome to withdraw at any time during the survey, though once it has been posted back to me it will not be possible to withdraw as I will not know which response was yours.

Though the results of this questionnaire may not directly benefit your own experience, you will help us have a better understanding of students' motivations and expectations within the degree, possibly improving support for future students.

I would like to assure you that this study has been reviewed and has received ethics clearance from the University of Waterloo, Office of Research Ethics. The final decision about participation is still yours.

If you are interested in participating please read through the first page of the questionnaire for further information and instructions. By completing and submitting the survey you will be consenting to participation in the study. Once you have completed the questionnaire you can send it back in the envelope provided. I kindly ask that you send this survey back as soon as possible.

Your help in this project is greatly appreciated.

Thank you and sincerely,

Brianna Samson
Masters Candidate,
University of Waterloo, School of Optometry and Vision Science
bc2hunte@uwaterloo.ca

3) Verbal Recruitment Script- for students on campus

Thank you very much for allowing me to speak with you today.
My name is Brianna Samson and I am a Masters candidate here at the University of Waterloo, School of Optometry and Vision Science. I am here today inviting you to participate in a study I am conducting on why optometry students choose optometry as a career.
I will be handing out surveys for any student interested in participating. The survey will take approximately 15-20 minutes to complete. It will consist of questions relating to your influences and motivations for choosing Optometry at University of Waterloo as well as your future expectations in this career. I am interested in hearing of your own personal thoughts so please complete it on your own. All answers will be anonymous and confidential as I will not be asking for your name. You are welcome to withdraw at any time during the survey though once it has been submitted to me this will no longer be possible because the survey is anonymous and I have no idea which responses are yours.
Though the results of this questionnaire may not directly benefit your own experience, you will be helping us to have a better understanding of students' motivations and expectations within the degree; possibly improving support for future students.
I would like to assure you that this study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee. However, the final decision about participation is yours. By completing and submitting the survey you will be consenting to participation in the study.
If you have any questions or have an interest in learning of the results of this study please e-mail the address found on the front page of the survey.
If you are interested in participating, please read the front page of the survey and continue on to the questions. There are 36 questions in total on the front and back of your papers. Once you have completed you can take the front page of instructions for your own records.
Does anyone have any questions?
Your help in this project is greatly appreciated. Thank you.

Optometry Student Questionnaire:

Masters Candidate: Brianna Samson

Supervisors: Dr. Shamrozé Khan and Dr. Paul J. Murphy

Thank you very much for your interest in this study.

Please read this page before continuing to the questionnaire.

Participants:

You have been invited to take part in this study as you are currently enrolled as a University of Waterloo, Doctor of Optometry (OD) student. It is not mandatory for you to complete this questionnaire though your help would be greatly appreciated.

Description:

The purpose of this study is to investigate optometry students' motivations, influences and expectations for choosing a career in Optometry and choosing to study at the School of Optometry and Vision Science, University of Waterloo.

Procedure:

This questionnaire will take approximately **15- 20 minutes** to complete. It will involve questions about your personal experiences and opinions entering and exiting the OD program. You can choose to stop the questionnaire at any time or choose not to hand it in, but once it has been submitted, there will no longer be an option to withdraw. There are no foreseeable risks involved with this survey. All survey results will be kept anonymous and confidential.

Though the results of this questionnaire may not directly benefit your own experience, you will be enabling us to have a better understanding of students' motivations and expectations within the program, possibly improving support for future students.

By completing and submitting this questionnaire you will be consenting to your participation in this study.

Contact information:

If you have any questions or concerns regarding this study or if you would like to be informed of the results, please e-mail: *bc2hunte@uwaterloo.ca*. Results can also be found at https://uwaterloo.ca/scholar/pjmurphy/people/brianna-samson once they have been input.

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee (ORE#40089). If you have questions for the Committee contact the Office of Research Ethics, at 1-519-888-4567 ext. 36005 or ore-ceo@uwaterloo.ca. Thank you again for your participation in this project. **This page is for your own record, please detach it and take it with you.**

University of Waterloo Optometry Student Questionnaire:

1) What year are you currently enrolled in?
   - ☐1st year
   - ☐4th year

2) What is your gender?
   - ☐Male
   - ☐Female
   - ☐Transgender
   - ☐Other:_____
   - ☐Would prefer not to disclose

3) How old are you?
   - ☐20-22 years old
   - ☐23-25 years old
   - ☐26-28 years old
   - ☐29+ years old

4) Which location did you consider your home address at the time of applying for this program?
   - ☐British Columbia
   - ☐Alberta
   - ☐Saskatchewan
   - ☐Manitoba
   - ☐Ontario
   - ☐Quebec
   - ☐New Brunswick
   - ☐Nova Scotia
   - ☐Prince Edward Island
   - ☐Newfoundland and Labrador
   - ☐Yukon
   - ☐Northwest Territories
   - ☐Nunavut
   - ☐United States of America
   - ☐Other:_____

5) What size of community did you live in at the time of applying for this program?

☐<1,000 people

☐1,000-29,999 people

☐30,000-99,999 people

☐100,000-299,999

☐300,000+

6) What is your primary language?

☐English

☐French

☐Other:_____

7) Was optometry your first choice when choosing a career?

☐Yes (Please continue to question 9)

☐No

8) If it was not your first choice, what was?

_____

9) Why did you decide to choose Optometry as your career? (Please provide one reason)

_____

_____

_____

10) At what age did you decide to pursue optometry as a career?

☐Before I was 10 years old

☐10-14 years old

☐15-18 years old

☐19-25 years old

☐26 years or older

11) What do you believe is an Optometrist's most important role?
Choose the **5 most relevant and rank them** in order of importance, 1 being most important and 5 being least important.

☐Supplying glasses
☐Determining a glasses prescription
☐Checking the health of the eye
☐Supplying contact lenses
☐Educating patients on eye health
☐Referring patients to Ophthalmologists for treatment
☐Treating patients' eye diseases
☐Other:_____
☐I do not know

12) Which areas of study below are you interested in? Please check all that apply.

☐Biology
☐Physics
☐Chemistry
☐Math
☐Business
☐Art
☐Trades (eg. ophthalmic lab technician)
☐English
☐Health studies/Anatomy and Physiology
☐Hospitality Services
☐Law
☐Foreign Languages
☐Other:_____

13) Which of these reasons contributed to your decision to be an optometrist? Choose the **5 most relevant and rank them** in order of importance, 1 being most important and 5 being least important.

☐Job Availability and Job Security

☐Interest in Health Science/Eye health

☐Desire to help people

☐The need to challenge oneself

☐Good Work-Life Balance

☐Job Autonomy/ opportunity to own your own Business

☐Pay and Benefits

☐Family Expectation

☐Reputation/ Prestige

☐Having the title of "Doctor"

☐Experience as a child or adolescent that made you interested in this career

☐Did not get into first choice program

☐Opportunities to co-operate and learn from other professionals

☐A career aptitude test suggested it

☐No particular reason for choosing this career

☐Other:_____

14) From how many optometry schools did you receive an offer of admission?

☐1

☐2

☐3

☐4

☐5+

15) Was your current university your first choice for optometry school?

☐Yes

☐No

16) Why did you choose this university?
Choose the **5 most relevant and rank them** in order of importance, 1 being most important and 5 being least important.

☐University reputation
☐Program reputation
☐Location was close to home
☐Location was an area of Canada in which I wanted to live
☐Program cost
☐Influence of a friend or family member
☐Influence of media or promotional material
☐First choice was not available
☐The optometry program is the only one available in my country taught in a language I am fluent in
☐Scholarships or Grants
☐Program curriculum
☐Other:_____

17) How much student debt do you expect to have from your 4 years in Optometry School?

☐ No debt
☐$1- $25,000
☐$25,000-$50,000
☐$50,000-$75,000
☐$75,000-$100,000
☐$100,000-$125,000
☐$125,000-$150,000
☐$150,000-$175,000
☐$175,000-$200,000
☐$200,000+

18) Have you or someone you are close with ever had an eye condition (not including the need for glasses)? Please check all that apply.

☐Yes, I do
☐Yes, my parent
☐Yes, a close relative
☐Yes, a close friend
☐No

19) Have you ever been prescribed glasses or contact lenses? Please check all that apply.

☐Yes, glasses

☐Yes, contact lenses

☐No

20) Do you have a relative or close friend who is an Optometrist? Please check all that apply.

☐Yes, my parent

☐Yes, a close relative

☐Yes, a close friend

☐No, I have no family or friends who are optometrists

21) Do you have any work experience in the eye care field? Please check all that apply.

☐Yes, job shadowing

☐Yes, volunteer position

☐Yes, I have worked in an optometry office

☐No (Please continue to question 23)

22) If yes, did this work experience influence your decision to choose Optometry as a career?

☐Yes

☐No

☐Not Applicable

23) What type of Optometry do you plan on practicing during your career? Please check all that apply.

☐Private practice (Solo or Partnered)

☐Corporate/Retail Practice

☐Hospital Practice

☐Academia

☐Residency

☐Industry-based

☐Locum work

☐Home visits

☐Volunteer work

☐Involvement with provincial or federal optometric associations

☐Undecided

☐I do not know

24) How many practices do you expect to work in at one time, at the beginning of your career?

☐1

☐2

☐3

☐4+

☐I don't know

25) At the beginning of your career, how many hours do you anticipate working each week?

☐Less than 10

☐11-20 hours

☐21-30 hours

☐31-40 hours

☐41-50 hours

☐50+ hours

26) Do you believe these hours will change throughout your career?

☐Yes

☐No (Please continue to question 29)

☐I don't know (Please continue to question 29)

27) How do you expect your hours to change?

☐My hours will increase

☐My hours will decrease

☐My hours will increase and decrease

☐I don't know

☐Not Applicable

28) Please provide <u>one example</u> of a situation that you think would change your hours

_____

_____

29) How much do you expect to make as your gross income your first year following graduation?

☐>$60,000
☐$60,000-$80,000
☐$80,000-$100,000
☐$100,000-$120,000
☐$120,000-$140,000
☐$140,000-$160,000
☐$160,000+
☐I don't know

30) Do you intend to own your own Practice?

☐Yes
☐No (Please continue to question 34)
☐I don't know (Please continue to question 34

31) If yes, in how many years do you intend to own your own Practice?

☐Immediately after graduation
☐1-5 years after graduation
☐6-10 years after graduation
☐11+years after graduation
☐Not Applicable

32) Do you intend to own an Optical Dispensary (an eyewear shop) as part of your practice?

☐Yes
☐No
☐I don't know

33) How many practices do you expect to own?

☐I do not intend to own a practice
☐1 practice
☐2-5 practices
☐5+ practices

34) Where do you expect to work at the beginning of your career?

☐British Columbia
☐Alberta
☐Saskatchewan
☐Manitoba
☐Ontario
☐Quebec
☐New Brunswick
☐Nova Scotia
☐Prince Edward Island
☐Newfoundland and Labrador
☐Yukon
☐Northwest Territories
☐Nunavut
☐United States of America
☐Other:_____

35) What size of community would you like to work in?

☐<1,000 people
☐1,000-29,999 people
☐30,000-99,999 people
☐100,000-299,999
☐300,000+

36) What is your reason for choosing the location you plan on practising in? (Please check all that apply)

☐Job prospects/ Job availability
☐Proximity to family
☐Proximity to significant other
☐Proximity to friends
☐Prefer living in the city
☐Prefer living in the country
☐Cost of living
☐Earning potential/ Benefits including optometric reimbursement
☐Demand/ Filling in a void
☐Other:_____

Thank you for your participation.

Appendix B

Main Survey

Confidential

CAN AM Optometry Student Survey/ 'CAN AM' Questionnaire pour les étudiants en optométrie

Thank you very much for your interest in this study.

Please read this page before continuing to the questionnaire.

(French translation below)

Participants:

You have been invited to take part in this study as you are currently enrolled as a first-year Doctor of Optometry (OD) student in Canada or the United States of America. It is not mandatory for you to complete this questionnaire though your help is greatly appreciated. As a thank you for participating, at the end of the survey you have the opportunity to submit your e-mail address for a chance to win 1 of 5 $50 Amazon Gift Certificates. The odds of winning will depend on the number of participants in the research project. This survey is being distributed to all first-year optometry students at 11 Optometry schools. Information collected to draw for the prizes will not be linked to the study data in any way, and this identifying information will be stored separately, then destroyed after the prizes have been provided. If the amount received is taxable, it is your responsibility to report this amount for income tax purposes. You can still participate in the draw by clicking through to the end.

Description:

The purpose of this study is to investigate optometry students' motivations, influences, and expectations for choosing a career in Optometry.

Procedure:

This questionnaire will take approximately 10 minutes to complete. It will involve questions about your personal experiences and opinions on entering the OD program at your university. Participation is voluntary. There are a few required questions at the start of the survey, but other questions may be skipped if you prefer not to answer. No one will know if they chose to participate or not as the survey is anonymous. You can choose to stop the questionnaire at any time, but once it has been submitted, there will no longer be an option to withdraw because we have no way of knowing which response is yours. There are no foreseeable risks involved in this survey. All survey results will be kept anonymous and confidential.

Though the results of this questionnaire may not directly benefit your own experience, you will be enabling us to have a better understanding of students' motivations and expectations within the program, possibly improving support for future students. Your School will also be given a copy of your school's results so they can better understand your classes' attitudes and expectations of your career in optometry.

By checking "Yes" on the first question of the questionnaire, you will be consenting to your participation in this study.

By providing your consent, you are not waiving your legal rights or releasing the investigator(s) or involved institution(s) from their legal and professional responsibilities.

Contact information:

If you have any questions or concerns regarding this study or if you would like to be informed of the results, please e-mail: bc2hunte@uwaterloo.ca. Results can also be found at https://uwaterloo.ca/scholar/pjmurphy/people/brianna-samson once they have been analysed.

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee (ORE#41402). If you have questions for the Committee contact the Office of Research Ethics, at 1-519-888-4567 ext. 36005 or ore-ceo@uwaterloo.ca.

Thank you again for your participation in this project.

Nous vous remercions de votre collaboration.

Veuillez lire cette page attentivement avant de continuer avec le sondage.

Participants:

À titre d'étudiant inscrit en première année d'études au programme d'optométrie au Canada ou aux États-Unis, vous êtes invité à participer à ce sondage. Votre participation à ce sondage n'est pas obligatoire cependant votre contribution est grandement appréciée. Le sondage sera envoyé à tous les étudiants. À titre de remerciement pour votre participation, vous pouvez soumettre votre courriel et être éligible de gagner un des cinq certificats cadeaux d'Amazon d'une valeur de 50$ chaque.

Description:

Cette étude a pour objectif de connaitre les raisons, les influences et les attentes des étudiants dans leur poursuite d'une carrière en optométrie.

Procédure:

Ce sondage prendra environ 10 minutes à compléter. Il comportera des questions sur vos expériences et vos opinions concernant votre entrée dans le programme d'optométrie de votre université. Vous pouvez choisir de quitter le questionnaire à tout moment, mais une fois soumis, vous n'aurez pas la possibilité de retirer vos données, car nous ne pourrons pas identifier quelle réponse est la vôtre. Il n'y a peu de risques prévisibles reliés à votre participation à ce sondage. Toutes les données resteront confidentielles et anonymes.

Vous ne retirerez aucun bénéfice personnel de votre participation à ce projet de recherche. Par ailleurs, les résultats contribueront à avoir une meilleure appréciation des facteurs qui motivent les étudiants et leurs attentes envers le programme d'optométrie et cela pourrait apporter un appui pour les futurs candidats. Les données seront partagées avec votre école afin qu'elle puisse mieux comprendre vos attentes envers le programme d'optométrie.

En acceptant de participer à ce projet de recherche, vous ne renoncez à aucun de vos droits et vous ne libréz pas le chercheur responsable de ce projet de recherche et l'établissement de leur responsabilité civile et professionnelle

Coordonnées:

Si vous avez des questions ou des préoccupations concernant cette étude, ou si vous aimerez être informé des données finales du sondage, n'hésitez pas à communiquer par courriel à: bc2hunte@uwaterloo.ca. Les données seront également disponibles au lien suivant https://uwaterloo.ca/scholar/pjmurphy/people/brianna-samson une fois qu'elles seront analysées.

Ce sondage a été révisé et a reçu l'approbation par le comité d'éthique de la recherche de l'Université de Waterloo (ORE#41402). Si vous avez des questions pour le comité, vous pouvez contacter le bureau d'éthique de la recherche au 1-519-888-4567 ext. 36005 ou ore-ceo@uwaterloo.ca. Le projet a également était approuvé par le Comité d'éthique de la recherche clinique de l'Université de Montréal.

En vous remerciant, une fois encore, pour votre participation à ce sondage.

Please complete the survey below.

Do you consent to participate in this questionnaire?	◯ Yes ◯ No
Thank you very much for your time. You are welcome to close your browser and none of your information will be saved. Have a great day!	
In which language do you want to complete the survey?	◯ English ◯ French
Which School of College of Optometry are you currently enrolled at?	◯ Ferris State University, Michigan College of Optometry ◯ Marshall B. Ketchum University, Southern California College of Optometry ◯ Southern College of Optometry ◯ The Ohio State University, College of Optometry ◯ Illinois College of Optometry ◯ University of California Berkeley, School of Optometry ◯ University of Houston, College of Optometry ◯ University of Missouri-Saint Louis, College of Optometry ◯ Université de Montréal, École d'Optométrie ◯ University of Pikeville, Kentucky College of Optometry ◯ University of Waterloo, School of Optometry and Vision Science
What is your gender?	◯ Male ◯ Female ◯ Transgender ◯ Would prefer not to disclose ◯ Other:
	_____
How old are you?	_____
What is your current highest level of academic qualifications?	◯ High School and a couple of years of a Bachelors degree ◯ CEGEP ◯ Bachelors degree ◯ Masters degree ◯ PhD ◯ Other post-graduate degree (e.g. professional)

Which location did you consider your home address at the time of applying for this program?	◯ Alberta ◯ British Columbia ◯ Manitoba ◯ New Brunswick ◯ Newfoundland and Labrador ◯ Northwest Territories ◯ Nova Scotia ◯ Nunavut ◯ Ontario ◯ Prince Edward Island ◯ Quebec ◯ Saskatchewan ◯ Yukon ◯ Alabama ◯ Alaska ◯ Arizona ◯ Arkansas ◯ California ◯ Colorado ◯ Connecticut ◯ Delaware ◯ Florida ◯ Georgia ◯ Hawaii ◯ Idaho ◯ Illinois ◯ Indiana ◯ Iowa ◯ Kansas ◯ Kentucky ◯ Louisiana ◯ Maine ◯ Maryland ◯ Massachusetts ◯ Michigan ◯ Minnesota ◯ Mississippi ◯ Missouri ◯ Montana ◯ Nebraska ◯ Nevada ◯ New Hampshire ◯ New Jersey ◯ New Mexico ◯ New York ◯ North Carolina ◯ North Dakota ◯ Ohio ◯ Oklahoma ◯ Oregon ◯ Pennsylvania ◯ Rhode Island ◯ South Carolina ◯ South Dakota ◯ Tennessee ◯ Texas ◯ Utah ◯ Vermont ◯ Virginia ◯ Washington ◯ West Virginia ◯ Wisconsin ◯ Wyoming ◯ Other:_____

	_____
What do you consider your primary language?	◯ English ◯ French ◯ Spanish ◯ Other:
	_____
Was optometry your first choice when choosing a career?	◯ Yes ◯ No
If it was not your first choice, what was?	_____
At what age did you decide to pursue optometry as a career?	◯ Before I was 10 years old ◯ 10-14 years old ◯ 15-18 years old ◯ 19-25 years old ◯ 26 years or older

What do you believe is an Optometrist's most important role?
Choose the 5 most relevant and rank them in order of importance, 1 being most important and 5 being least important.

Selon vous, quel est le rôle le plus important d'un optométriste?
Sélectionnez les cinq le plus important, et classer les en ordre d'importance, 1 pour le plus important et 5 pour le moins important.

	1 Most	2	3	4	5 Least
Determining a glasses prescription	○	○	○	○	○
Supplying glasses	○	○	○	○	○
Checking the health of the eye	○	○	○	○	○
Supplying contact lenses	○	○	○	○	○
Educating patients on eye health	○	○	○	○	○
Referring patients to an ophthalmologist for treatment	○	○	○	○	○
Treating patients' eye diseases	○	○	○	○	○
Managing a team of support technicians	○	○	○	○	○
Other:	○	○	○	○	○

_____

Which areas of study below are you interested in?
Please check all that apply.

- ☐ Biology
- ☐ Physics
- ☐ Chemistry
- ☐ Math
- ☐ Business
- ☐ Art
- ☐ Trades (e.g. ophthalmic lab technician)
- ☐ English
- ☐ Health studies/ Anatomy and Physiology
- ☐ Hospitality Services
- ☐ Law
- ☐ Foreign Languages
- ☐ Computer Science
- ☐ Leadership
- ☐ Other:

_____

Which of these reasons contributed to your decision to be an optometrist?
Choose the 5 most relevant and rank them in order of importance, 1 being most important and 5 being least important

Identifiez, parmi la liste, les raisons qui ont contribué à votre décision de devenir un optométriste ?
Sélectionnez les cinq le plus important, et classer les en ordre d'importance, 1 pou le plus important et 5 pour le moins important.

	1 Most	2	3	4	5 Least
Job availability and job security	○	○	○	○	○
Interest in healthcare	○	○	○	○	○
Interest in eyes and vision	○	○	○	○	○
Interest in optics	○	○	○	○	○
Desire to help people	○	○	○	○	○
The need to challange oneself	○	○	○	○	○
I have always been good at academics	○	○	○	○	○
Good work-life balance	○	○	○	○	○
Job autonomy/ opportunity to own your own business	○	○	○	○	○
Pay and/or benefits	○	○	○	○	○
Inherit/ work in family business	○	○	○	○	○
Family expectation/ pressure	○	○	○	○	○
Reputation/ prestige	○	○	○	○	○
Enjoy working with people	○	○	○	○	○
Experience with optometry or eyecare as a child or adolescent that made you interested in this career	○	○	○	○	○
Did not get into first choice program	○	○	○	○	○
Outreach opportunities	○	○	○	○	○
Community involvement	○	○	○	○	○
Opportunities to collaborate with other professionals	○	○	○	○	○
Having the title of "Doctor"	○	○	○	○	○
A mentor (friend, family member, career counsellor) suggested it	○	○	○	○	○
Inspired by own optometrist or pleasant experiences with an optometrist	○	○	○	○	○

"Clean profession"	◯	◯	◯	◯	◯
No particular reason for choosing this career	◯	◯	◯	◯	◯
Other:	◯	◯	◯	◯	◯

	_____
How many optometry schools did you apply to?	◯ 1 ◯ 2 ◯ 3 ◯ 4 ◯ 5+
How many optometry schools did you receive an offer of admission?	◯ 1 ◯ 2 ◯ 3 ◯ 4 ◯ 5+
Was your current university your first choice for optometry school?	◯ Yes ◯ No

Why did you choose this university?
Choose the 5 most relevant and rank them in order of importance, 1 being most important and 5 being least important.

Pourquoi avez-vous choisi cette université?
Sélectionnez les cinq le plus important, et classer les en ordre d'importance, 1 pour le plus important et 5 pour le moins important

	1 Most	2	3	4	5 Least
University reputation, regardless of location	○	○	○	○	○
Program reputation, regardless of location	○	○	○	○	○
Location was close to home	○	○	○	○	○
Location was in an area of Canada/USA in which I wanted to live	○	○	○	○	○
Program cost	○	○	○	○	○
Influences of a friend or family member	○	○	○	○	○
Influence of my optometrist	○	○	○	○	○
Influence of media or promotional material	○	○	○	○	○
First choice was not available	○	○	○	○	○
The optometry program is the only one available in my country taught in a language I am fluent in	○	○	○	○	○
Scholarships or Grants	○	○	○	○	○
"Gut feeling"	○	○	○	○	○
Welcome day/ Interview day	○	○	○	○	○
Program curriculum	○	○	○	○	○
Other:	○	○	○	○	○

_____

How much student debt do you expect to have from your Optometry degree?

- ○ No debt
- ○ US $1- $25,000 (CAD $1.33-$33,189)
- ○ US $25,000-$50,000 (CAD $33,189-$66,378)
- ○ US $50,000-$75,000 (CAD $66,378-$99,566)
- ○ US $75,000-$100,000 (CAD $99,566-$132,755)
- ○ US $100,000-$125,000 (CAD $132,755-$165,944)
- ○ US $125,000-$150,000 (CAD $165,944-$199,133)
- ○ US $150,000-$175,000 (CAD $199,133-$232,321)
- ○ US $175,000-$200,000 (CAD $232,321-$265,510)
- ○ US $200,000+ (CAD $265,510+)

Have you, or someone you are close with, ever had an eye condition or vision problem (not including the need for glasses)? Please check all that apply.	☐ Yes, I do ☐ Yes, my parent ☐ Yes, a close relative ☐ Yes a close friend ☐ No
If yes, did this influence your decision to choose optometry as a career?	◯ Yes ◯ No
Have you ever been prescribed glasses or contact lenses? Please check all that apply.	☐ Yes, glasses ☐ Yes, contact lenses ☐ No
If yes, did this influence your decision to choose optometry as a career?	◯ Yes ◯ No
Do you have a relative or close friend who is an Optometrist or in an eye-related field of work? Please check all that apply.	☐ Yes, my parent ☐ Yes, a close relative ☐ Yes, a close friend ☐ No
If yes, did this influence your decision to choose optometry as a career?	◯ Yes ◯ No
Do you have any work experience in the eye care field? Please check all that apply.	☐ Yes, job shadowing ☐ Yes, volunteer position ☐ Yes, I have worked in an eye care field ☐ No
If yes, did this influence your decision to choose optometry as a career?	◯ Yes ◯ No
Do you have any experience in eye or vision research?	◯ Yes ◯ No
If yes, did this influence your decision to choose optometry as a career?	◯ Yes ◯ No
What type of Optometry do you hope or expect to practice during your career? Please check all that apply.	☐ Private practice (Solo or Partnered) ☐ Corporate/ Retail Practice ☐ Hospital Practice ☐ Veterans' Affairs Hospital ☐ Military/ Navy/ Air Force ☐ Minor eye surgical procedures ☐ Academia ☐ Residency ☐ Industry-based ☐ Locum work ☐ Home visits ☐ Volunteer work ☐ Laser surgery ☐ Involvement with state, provincial or federal optometric associations ☐ I don't know ☐ Other:

_____

How many practices do you expect to work in at one time, at the beginning of your career?	◯ 1 ◯ 2 ◯ 3 ◯ 4+ ◯ I don't know
At the beginning of your career, how many hours do you anticipate working each week?	◯ Less than 10 ◯ 11-20 hours ◯ 21-30 hours ◯ 31-40 hours ◯ 41-50 hours ◯ 50+ hours ◯ I don't know
How much do you expect to make as your gross income in the first year following your graduation?	◯ < $60,000 US (< $79,653 CA) ◯ $60,000-$80,000 US ($79,653-$106,204 CA) ◯ $80,000-$100,000 US ($106,204-$132,755 CA) ◯ $100,000-$120,000 US ($132,755- $159,306 CA) ◯ $120,000-$140,000 US ($159,306-$185,857 CA) ◯ $140,000-$160,000 US ($185,857-$212,408 CA) ◯ $160,000+ US ($212,408+ CA) ◯ I don't know

Do you believe your hours in practice will change throughout the first 10 years of your career?

Check each option that pertains to you, and mark whether this will make your hours increase or decrease.

Pensez-vous que vos heures changerons durant les 10 premières années de votre carrière? Cocher toutes les options qui s'appliquent en indiquant si cela va augmenter ou diminuer le montant d'heures de travaille.

	Not Applicable	Hours expected to increase	Hours expected to decrease
Maternity Leave	◯	◯	◯
Paternity Leave	◯	◯	◯
Having children/ Spending time with children	◯	◯	◯
Time devoted to interests or hobbies	◯	◯	◯
Family responsibilities	◯	◯	◯
Pursuing further studies	◯	◯	◯
Change in role within the optometry profession (i.e. taking on a more administrative role)	◯	◯	◯
Own my own business	◯	◯	◯
Changing case load/ patient base	◯	◯	◯
Ideal Salary	◯	◯	◯
Paying off debts	◯	◯	◯
Developing a second career outside of Optometry	◯	◯	◯
Taking time for volunteer work	◯	◯	◯
Role in professional bodies	◯	◯	◯
Health issues or sickness	◯	◯	◯
Early retirement	◯	◯	◯
Other:	◯	◯	◯

_____

Do you intend to own a practice/practices?

◯ No
◯ Yes
◯ I would like to co-own a practice
◯ I don't know

Do you intend to buy an existing practice or start one from scratch?

◯ Buy an existing practice
◯ Start a practice from scratch

In how many years do you intend to own your own practice?	◯ Immediately after graduation ◯ 1-5 years after graduation ◯ 6-10 years after graduation ◯ 11+ years after graduation ◯ I don't know
Do you intend to own an Optical Dispensary (an eyewear shop) as part of your practice?	◯ no ◯ yes ◯ I don't know

In which province/ state do you expect to work at the beginning of your career?	◯ Alberta ◯ British Columbia ◯ Manitoba ◯ New Brunswick ◯ Newfoundland and Labrador ◯ Northwest Territories ◯ Nova Scotia ◯ Nunavut ◯ Ontario ◯ Prince Edward Island ◯ Quebec ◯ Saskatchewan ◯ Yukon ◯ Alabama ◯ Alaska ◯ Arizona ◯ Arkansas ◯ California ◯ Colorado ◯ Connecticut ◯ Delaware ◯ Florida ◯ Georgia ◯ Hawaii ◯ Idaho ◯ Illinois ◯ Indiana ◯ Iowa ◯ Kansas ◯ Kentucky ◯ Louisiana ◯ Maine ◯ Maryland ◯ Massachusetts ◯ Michigan ◯ Minnesota ◯ Mississippi ◯ Missouri ◯ Montana ◯ Nebraska ◯ Nevada ◯ New Hampshire ◯ New Jersey ◯ New Mexico ◯ New York ◯ North Carolina ◯ North Dakota ◯ Ohio ◯ Oklahoma ◯ Oregon ◯ Pennsylvania ◯ Rhode Island ◯ South Carolina ◯ South Dakota ◯ Tennessee ◯ Texas ◯ Utah ◯ Vermont ◯ Virginia ◯ Washington ◯ West Virginia ◯ Wisconsin ◯ Wyoming ◯ Other:_____

	_____
What size of community would you like to work in?	◯ < 1,000 people ◯ 1,000-29,000 people ◯ 30,000-99,999 people ◯ 100,000-299,999 people ◯ 300,000+ people ◯ I don't know
What is your reason for choosing the location you plan on practicing in? Please check all that apply.	☐ Job prospects/availability ☐ Proximity to family ☐ Proximity to significant other ☐ Proximity to friends ☐ Prefer living in an urban area ☐ Prefer living in a rural area ☐ Cost of living ☐ Job type matches what I am looking for ☐ Proximity to current or previous place of education ☐ Earning potential/ Benefits including optometric reimbursement ☐ Demand/ filling in a void ☐ Other:
	_____
At what age do you plan on retiring? As quel âge envisagez-vous de prendre votre retraite?	◯ < 35 ◯ 36-40 ◯ 41-45 ◯ 46-50 ◯ 51-55 ◯ 56-60 ◯ 61-65 ◯ 66-70 ◯ 71-75 ◯ 76+

‘CAN AM’ Questionnaire pour les étudiants en optométrie:

Candidate à la maîtrise: Brianna Samson

Superviseurs: Dr. Shamrozé Khan et Dr. Paul J. Murphy

Nous vous remercions de votre collaboration.

Veuillez lire cette page attentivement avant de continuer avec le sondage.

Participants:

À titre d’étudiant inscrit en première année d’études au programme d’optométrie au Canada ou aux États-Unis, vous êtes invites à participer à ce sondage. Ce sondage n’est pas obligatoire cependant votre contribution est grandement appréciée. À titre de remerciement pour votre participation, vous pouvez soumettre votre courriel et être éligible de **gagner un des cinq certificats cadeaux d’Amazon d’une valeur de 50$ chaque.**

Description:

Cette étude a pour objectif d’investiger les raisons, les influences et les attentes des étudiants dans leur poursuite d’une carrière en optométrie.

Procédure:

Ce sondage prendra environ **10 minutes** à compléter. Il comportera des questions sur vos expériences et vos opinions concernant votre entrée dans le programme d’optométrie de votre université. Vous pouvez arrêter le sondage à n’importe quel moment, par conte dès que le sondage est soumis, une rétraction des données ne sera plus possible. Il n’y a peu de risques prévisibles reliés à votre participation à ce sondage. Toutes les données resteront confidentielles et anonymes.

Les résultats de cette étude auront aucun bénéfice personnel, par contre, par l’entremise de votre participation, une meilleure appréciation des facteurs qui motivent les étudiants et leurs attentes envers le programme d’optométrie serait obtenu, et cela pourrait apporter un appui

pour les futurs candidats. Les données seront partagées avec votre école afin qu'elle puisse mieux comprendre vos attentes envers le programme d'optométrie.

En cochant "Oui" à la première question du sondage, vous consentez à y participer.

Coordonnées:

Si vous avez des questions ou des préoccupations concernant cette étude, ou si vous aimerez être informé des données finales du sondage, n'hésitez pas à communiquer par courriel à: *bc2hunte@uwaterloo.ca*. Les données seront également disponibles au lien suivant https://uwaterloo.ca/scholar/pjmurphy/people/brianna-samson une fois qu'elles seront analysées.

Ce sondage a été révisé et a reçu l'approbation par le comité d'éthique de la recherche de l'Université de Waterloo (ORE#41402). Si vous avez des questions pour le comité, vous pouvez contacter le bureau d'éthique de la recherche au 1-519-888-4567 ext. 36005 ou ore-ceo@uwaterloo.ca.

En vous remerciant, une fois encore, pour votre participation à ce sondage.

CAN AM sondage pour les étudiants d'optométrie:

1) Consentez-vous à participer à ce sondage?
    a. Oui
    b. Non

2) Dans quelle langue souhaitez-vous compléter ce sondage?
    a. Anglais
    b. Français

3) Ou êtes-vous inscrit pour vos études d'optométrie?
    a. Ferris State University, Michigan College of Optometry
    b. Marshall B Ketchum University, Southern California College of Optometry
    c. Southern College of Optometry
    d. The Ohio State University, College of Optometry
    e. The University of Alabama at Birmingham, School of Optometry
    f. University of California Berkeley, School of Optometry
    g. University of Houston, College of Optometry
    h. University of Missouri- Saint Louis, College of Optometry
    i. Université de Montréal, École d'Optométrie
    j. University of Pikeville, Kentucky College of Optometry
    k. University of Waterloo, School of Optometry and Vision Science

4) Veuillez indiquer votre sexe?
    a. Homme
    b. Femme
    c. Transgenre
    d. Préfère de ne pas dévoiler
    e. Autre:_____

5) Quel âge avez-vous?

    _____

6) À date, quel est votre niveau le plus élevé de qualifications académiques?
    a. École secondaire
    b. Collégiale/CEGEP
    c. Baccalaureat (BSc, BA)

d. Maitrise
e. Doctorat (PhD)
f. Autre diplôme post-gradué (ie. professionnel)

7) Quel été votre lieu de résidence au moment de votre application au programme d'optométrie?
   a. Alberta
   b. Colombie-Britannique
   c. Manitoba
   d. Nouveau Brunswick
   e. Terre-Neuve et Labrador
   f. Territoires Nord-ouest
   g. Nouvelle - Écosse
   h. Nunavut
   i. Ontario
   j. L'Île du Prince Édward
   k. Québec
   l. Saskatchewan
   m. Yukon
   n. Alabama
   o. Alaska
   p. Arizona
   q. Arkansas
   r. Californie
   s. Colorado
   t. Connecticut
   u. Delaware
   v. Floride
   w. Géorgie
   x. Hawaii
   y. Idaho
   z. Illinois
   aa. Indiana
   bb. Iowa
   cc. Kansas
   dd. Kentucky
   ee. Louisiane
   ff. Maine
   gg. Maryland

hh. Massachusetts
ii. Michigan
jj. Minnesota
kk. Mississippi
ll. Missouri
mm. Montana
nn. Nebraska
oo. Nevada
pp. New Hampshire
qq. New Jersey
rr. Nouveau- Mexique
ss. New York
tt. Caroline du Nord
uu. Dakota du Nord
vv. Ohio
ww. Oklahoma
xx. Oregon
yy. Pennsylvanie
zz. Rhode Island
aaa. Caroline du Sud
bbb. Dakota du Sud
ccc. Tennessee
ddd. Texas
eee. Utah
fff. Vermont
ggg. Virginie
hhh. Washington
iii. Virginie de l'Ouest
jjj. Wisconsin
kkk. Wyoming
lll. Autre: _____

8) Quelle est votre langue maternelle?
   a. Anglais
   b. Français
   c. Espagnol
   d. Autre:_____

9) Est-ce que l'optométrie était votre premier choix comme carrière?
    a. Oui
    b. Non

10) Si non, quel était votre premier choix?

_____

11) À quel âge avez-vous considérer l'optométrie comme carrière?
    a. Avant 10 ans
    b. Entre 10 et 14 ans
    c. Entre 15 et 18 ans
    d. Entre 19 et 25 ans
    e. 26 ans ou plus

12) Selon vous, quel est le rôle le plus important d'un optométriste?

    Sélectionnez les **cinq le plus important, et classer les** en ordre d'importance, 1 pour le plus important et 5 pour le moins important.

    a. Établir une prescription de lunettes
    b. Fournir les lunettes
    c. La vérification de la santé de l'oeil
    d. Fournir des lentilles cornéennes ('verres de contacts')
    e. L'éduquer les patients sur la santé oculaire
    f. Référer les patients vers un ophtalmologiste pour des traitements
    g. Traiter des maladies oculaires des patients
    h. Gérer une équipe des techniciens de soutien
    i. Autre:_____
    j. Je ne sais pas

13) Quels domaines d'études vous intéressent? Cocher toutes les réponses qui s'appliquent.
    a. Biologie
    b. Physique
    c. Chimie
    d. Mathématique

e. Affaires
f. Art
g. Métier (ex. technicien ophtalmique de laboratoire)
h. Anglais
i. Études de santé/Anatomie and Physiologie
j. Service d'hospitalité
k. Loi
l. Langues étrangères
m. Sciences informatiques
n. Leadership
o. Autre:_____

14) Identifiez, parmi la liste, les raisons qui ont contribué à votre décision de devenir un optométriste ?
Sélectionnez les **cinq le plus important, et classer les** en ordre d'importance, 1 pou le plus important et 5 pour le moins important.
a. Disponibilité et sécurité d'emploi
b. Intérêts dans les soins de santé
c. Intérêts pour les yeux et la vision
d. Intérêts pour l'optique
e. Désir d'aider les gens
f. Le désir de se lancer des défis
g. J'ai toujours bien performé au niveau académique
h. Conciliation travail-vie personnelle
i. Autonomie d'emploi/opportunité d'être propriétaire
j. Paie et/ou avantages sociaux
k. Hériter/ travail dans un bureau appartenant à la famille
l. Attentes/pression familiale
m. Réputation/ prestige
n. Volonté de travailler avec des gens
o. Expérience personnelle avec l'optométrie ou les soins oculaires lors de mon enfance ou comme adolescent
p. N'ai pas rentrée dans mon programme de premier choix
q. Opportunité communautaire
r. Participation communautaire
s. Opportunité de collaborer avec d'autres professionnels
t. Avoir un titre de "Docteur"
u. Recommandation d'un mentor (ami, famille, conseiller de carrière)

v. Inspiré par mon optométriste ou par une expérience positive avec un optométriste
w. Profession 'propre'
x. Aucune raison particulière d'avoir choisi cette carrière
y. Autre:_____

15) As combien d'écoles d'optométries avez-vous appliqué?
   a. 1
   b. 2
   c. 3
   d. 4
   e. 5+

16) Combien d'écoles d'optométrie vous ont offert une admission?
   a. 1
   b. 2
   c. 3
   d. 4
   e. 5+

17) Est-ce que l'université dans laquelle vous êtes inscrit actuellement était votre premier choix pour le programme d'optométrie?
   a. Oui
   b. Non

18) Pourquoi avez-vous choisi cette université?

Sélectionnez les **cinq le plus important, et classer les** en ordre d'importance, 1 pour le plus important et 5 pour le moins important.

   a. Réputation de l'université, peu importe l'emplacement
   b. Réputation de programme, peu importe l'emplacement
   c. Emplacement proche de chez-moi
   d. Emplacement dans la région du Canada/ÉU ou je voulais vivre
   e. Coût du programme
   f. Influence d'un ami ou membre de famille
   g. Influence de mon optométriste
   h. Influence des médias ou matériels promotionnels
   i. Premier choix n'était pas disponible

j. Le programme d'optométrie est le seul dans mon pays disponible dans la langue que j'utilise couramment
k. Bourses ou subventions
l. Mon intuition
m. Journée d'orientation/ Entrevue
n. Le curriculum
o. Autre:_____

19) De combien envisagez-vous votre dette totale à la fin de vos études en optométrie?
a. Aucune dette
b. US $1- $25 000 (CAD $1,33-$33 189)
c. US $25 000-$50 000 (CAD $33 189-$66 378)
d. US $50 000-$75 000 (CAD $66 378-$99 566)
e. US $75 000-$100 000 (CAD $99 566-$132 755)
f. US $100 000-$125 000 (CAD $132 755-$165 944)
g. US $125 000-$150 000 (CAD $165 944-$199 133)
h. US $150 000-$175 000 (CAD $199 133-$232 321)
i. US $175 000-$200 000 (CAD $232 321-$265 510)
j. US $200 000+ (CAD $265 510+)

20) Avez-vous, ou une connaissance proche, eu une condition oculaire ou des problèmes de vision (autre que les lunettes)? Cocher toutes les réponses qui s'appliquent.
a. Oui, moi
b. Oui, un parent
c. Oui, un membre de la famille
d. Oui, un ami
e. Non

21) Si oui, est-ce que ceci a influencé votre décision d'entrer en d'optométrie?
a. Oui
b. Non

22) Avez-vous jamais reçu une prescription pour des lunettes ou lentilles cornéennes ('verres de contact')? Cocher toutes les réponses applicables.
a. Oui, lunettes
b. Oui, lentilles cornéennes ('verres de contact')
c. Non

23) Si oui, est-ce que ceci a influencé votre décision d'entrer en d'optométrie?
    a. Oui
    b. Non

24) Avez-vous un membre de la famille ou un ami proche qui est un optométriste ou qui est dans le domaine des soins de la vision? Cocher toutes les réponses qui s'appliquent.
        a. Oui, un parent
        b. Oui, un membre de la famille
        c. Oui, un ami proche
        d. Non

25) Si oui, est-ce que ceci a influencé votre décision d'entrer en d'optométrie?
    a. Oui
    b. Non

26) Avez-vous déjà de l'expérience dans ce domaine des soins de la vue? Cocher toutes les réponses qui s'appliquent.
    a. Oui, en stage
    b. Oui, à titre de bénévole
    c. Oui, j'ai travaillé dans un bureau d'optométrie
    d. Non

27) Si oui, est-ce que ceci a influencé votre décision d'entrer en d'optométrie?
    a. Oui
    b. Non

28) Avez-vous de l'expérience avec la recherche de l'œil ou de la vision?
    a. Oui
    b. Non

29) Si oui, est-ce que ceci a influencé votre décision d'entrer en d'optométrie?
    a. Oui
    b. Non
    c. Non-applicable

30) Quel type de pratique espérez-vous d'exercer durant votre carrière ? Cocher toutes réponses qui s'appliquent.
    a. Pratique privée (propriétaire ou co-propriétaire)

b. Corporatif/pratique commerciale
c. Hospitalier
d. Hôpital d'anciens combattants
e. Forces militaire/marine/armées
f. Intervention chirurgicale mineure
g. Académique
h. Résidence
i. Travail pour l'industrie
j. Travail de remplacement
k. Visite à domicile
l. Bénévolat
m. Chirurgie au laser
n. Implications au niveau des associations optométrique provinciales/fédérales/états
o. Je ne sais pas
p. Autre: _____

31) Au début de votre carrière, dans combien de bureaux prévoyez-vous travailler?
a. 1
b. 2
c. 3
d. 4+
e. Je ne sais pas

32) Au début de votre carrière, combien d'heures anticipez-vous travailler par semaine?
a. Moins de 10 heures
b. 11 à 20 heures
c. 21 à 30 heures
d. 31 à 40 heures
e. 41 à 50 heures
f. Plus que 50 heures
g. Je ne sais pas

33) Pensez-vous que vos heures changerons durant les 10 premières années de votre carrière?
Cocher toutes les options qui s'appliquent en indiquant si cela va augmenter ou diminuer le montant d'heures de travaille.

	Pas applicables	Augmentation d'heures anticipées	Diminution d'heures anticipées
Congé maternité			
Congé paternité			
Avoir des enfants/Passé du temps avec les enfants			
Temps pour les loisirs			
Responsabilités familiales			
Poursuite d'études supplémentaires			
Changement de rôle d'optométrie (par exemple, administration)			
Devenir Propriétaire			
Changement de charge de travail ou de type de patient			
Salaire idéal			
Paiement de dettes			
Changements de santé			
Développer une deuxième carrière en dehors de l'optométrie			
Prendre plus de temps pour du bénévolat			
Implication dans les associations professionnelles			
Problèmes de santé ou maladies			
Pré-retraite			
Autre:_____			

34) Combien prévoyez-vous gagner en revenu brut dans votre première année suivant votre graduation?
    a. <$60 000 US (<$79 653 CA)
    b. $60 000-$80 000 US ($79 653-$106 204 CA)
    c. $80 000-$100 000 US ($106 204-$132 755 CA)
    d. $100 000-$120 000 US ($132 755- $159 306 CA)
    e. $120 000-$140 000 US ($159 306-$185 857 CA)
    f. $140 000-$160 000 US ($185 857-$212 408 CA)
    g. $160 000+ US ($212 408+ CA)
    h. Je ne sais pas

35) Avez-vous l'intention d'être propriétaire de votre (vos) pratique(s)?
    a. Oui
    b. Non
    c. J'aimerais être co-propriétaire
    d. Je ne sais pas

36) Si oui, prévoyez-vous acheter une pratique existante ou débutez une nouvelle?
    a. Acheter une pratique existante
    b. Débutez une nouvelle

37) Si oui, dans combien d'années envisagez-vous d'être propriétaire de votre pratique?
    a. Suite à la graduation
    b. 1 à 5 ans après la graduation
    c. 6 à 10 ans après la graduation
    d. 11+ après la graduation
    e. Pas applicable

38) Prévoyez-vous être propriétaire d'un dispensaire (services optiques) dans votre pratique?
    a. Oui
    b. Non
    c. Je ne sais pas

39) Dans quel province/état prévoyez-vous débuter votre carrière?
    a. Alberta
    b. Colombie-Britannique
    c. Manitoba
    d. Nouveau Brunswick

e. Terre-Neuve et Labrador
f. Territoires Nord-ouest
g. Nouvelle - Écosse
h. Nunavut
i. Ontario
j. L'Île du Prince Édward
k. Québec
l. Saskatchewan
m. Yukon
n. Alabama
o. Alaska
p. Arizona
q. Arkansas
r. Californie
s. Colorado
t. Connecticut
u. Delaware
v. Floride
w. Géorgie
x. Hawaii
y. Idaho
z. Illinois
aa. Indiana
bb. Iowa
cc. Kansas
dd. Kentucky
ee. Louisiane
ff. Maine
gg. Maryland
hh. Massachusetts
ii. Michigan
jj. Minnesota
kk. Mississippi
ll. Missouri
mm. Montana
nn. Nebraska
oo. Nevada
pp. New Hampshire
qq. New Jersey

rr. Nouveau- Mexique
ss. New York
tt. Caroline du Nord
uu. Dakota du Nord
vv. Ohio
ww. Oklahoma
xx. Oregon
yy. Pennsylvanie
zz. Rhode Island
aaa. Caroline du Sud
bbb. Dakota du Sud
ccc. Tennessee
ddd. Texas
eee. Utah
fff. Vermont
ggg. Virginie
hhh. Washington
iii. Virginie de l'Ouest
jjj. Wisconsin
kkk. Wyoming
lll. Autre: _____

40) Identifiez la taille de communauté dans laquelle vous désirez de vous installer pour travailler ?
    a. <1,000 personnes
    b. 1,000-29,999 personnes
    c. 30,000-99,999 personnes
    d. 100,000-299,999
    e. 300,000+
    f. Je ne sais pas

41) Identifiez les raisons de votre choix de pratique? (Cochez toutes les réponses applicables)?
    a. Disponibilité d'emploi
    b. Proximité de famille
    c. Proximité de conjoint/votre moitié
    d. Proximité d'amis
    e. Préférence d'habiter dans une zone urbaine

f. Préférence d'habiter dans une zone rurale
g. Coût de vie
h. Le type de travail correspond à ce que je recherche
i. Proximité à mon lieu d'études actuelles ou précédentes
j. Potentiel de revenus/bénéfices incluant le remboursement optométrique
k. Remplir une demande/combler un vide
l. Autre:_____

42) As quel âge envisagez-vous de prendre votre retraite?

_____

Merci pour votre participation.

Appendix C

Promotional Material: Main Study

1) First E-mail

This e-mail has been sent to you on behalf of the researchers at the University of Waterloo.

*Free image from pixabay.com

SCHOOL OF OPTOMETRY & VISION SCIENCE
200 University Avenue West, Waterloo, ON, CANADA, N2L 3G1
519-888-4567*32020 | fax 519-725-0784 | uwaterloo.ca/optometryvision science

Why did you choose Optometry?

Why did you choose this School?

We want to hear from **you!**

Hello,

My name is Brianna and I am a Masters student at the University of Waterloo. I am conducting a survey on first year optometry students' motivations, influences and expectations for choosing optometry as a career in Canada and the United States and I need your help.

Linked to this email is an online survey that will take approximately **10 minutes** to complete. It entails questions on demographics, reasons for choosing optometry, reasons for choosing your school, exposure to the field prior to entering the program and expectations of your future as an Optometrist.

Further details are found at the beginning of the survey (found in the link below). This study has been reviewed and has received ethics clearance from the University of Waterloo, Office of Research Ethics.

Participation is voluntary though very much appreciated. At the end of the survey you can enter a draw to win 1 of 5 $50 Amazon cards as a thank you for your participation.

Thank you very much for your time.

LINK: https://quark.uwaterloo.ca/redcap/surveys/?s=3R7ETJHPJ4

Sincerely,

Brianna Samson

bc2hunte@uwaterloo.ca (Email this address if you would like a copy of the results)

Master of Science in Vision Science Candidate

University of Waterloo, School of Optometry and Vision Science

Under the supervision of: Dr. Paul J. Murphy and Dr. Shamrozé Khan

This e-mail has been sent to you on behalf of the researchers at the University of Waterloo.

Ce message vous est envoyé de la part des chercheurs de l'Université de Waterloo.

*Free image from pixabay.com

SCHOOL OF OPTOMETRY & VISION SCIENCE
200 University Avenue West, Waterloo, ON, CANADA, N2L 3G1
519-888-4567
poste 32020 |
téléc. 519-725-0784 |
uwaterloo.ca/optometryvision-science

Pourquoi avez-vous choisi l'optométrie?

Pourquoi avez-vous choisi cette école?

Nous voulons savoir ce que **vous pensez**!

Bonjour,

Je m'appelle Brianna et je suis étudiante à la maîtrise à l'Université de Waterloo. J'organise un sondage sur les motivations, les influences et les attentes liées aux choix de l'optométrie par les étudiants de première année au Canada et aux États-Unis et j'ai besoin de votre aide.

Vous trouverez dans ce courriel un lien vers un sondage. Répondre au sondage prend environ **10 minutes**. Il contient des questions sur des données démographiques, les raisons de votre choix concernant l'optométrie, les raisons concernant votre choix d'école, votre exposition à ce secteur avant d'intégrer le programme et vos attentes pour votre carrière d'optométriste.

Vous trouverez plus de détails au début du sondage (en suivant le lien ci-dessous). Cette étude a été évaluée et a reçu une approbation éthique du Bureau de l'éthique de la recherche de l'Université de Waterloo.

La participation est très appréciée, et est volontaire. À la fin du sondage, vous aurez la chance de participer à un tirage au sort pour gagner l'une des cinq cartes cadeau Amazon de 50 $, en remerciement pour votre participation.

Merci beaucoup pour votre temps.

LIEN : https://quark.uwaterloo.ca/redcap/surveys/?s=3R7ETJHPJ4

Sincères salutations,

Brianna Samson

bc2hunte@uwaterloo.ca (Si vous souhaitez recevoir une copie des résultats, veuillez écrire à cette adresse)

Candidate à la maîtrise en sciences de la vision

Université de Waterloo, School of Optometry and Vision Science

Sous la supervision de : Dr Paul J. Murphy and Dre Shamrozé Khan

Ce courriel vous a été envoyé de la part des chercheurs de l'Université de Waterloo.

2) Reminder e-mail

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fax 519-725-0784 |
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Just a friendly reminder!

Hello again,

I hope you remember my first email. My name is Brianna and I am a Masters student at the University of Waterloo. I am e-mailing as a follow-up to my previous e-mail I sent regarding a survey I am conducting on first year optometry students' motivations, influences and expectations for choosing optometry as a career in Canada and the USA. I would greatly appreciate your help if you have not already completed it.

Linked to this email is an online survey that will take approximately **10 minutes** to complete. It entails questions on demographics, reasons for choosing optometry, reasons for choosing your school, exposure to the field prior to entering the program and expectations of your future as an Optometrist. Further details are found at the beginning of the survey. This study has been reviewed and has received ethics clearance from the University of Waterloo, Office of Research Ethics.

Participation is voluntary though very much appreciated. At the end of the survey you can enter a draw to win 1 of 5 $50 Amazon cards as a thank you for your participation. **We will be closing access to the survey on January 31, 2020 so please complete it before this date.**

Thank you very much for your time.

LINK: https://quark.uwaterloo.ca/redcap/surveys/?s=3R7ETJHPJ4

Sincerely,

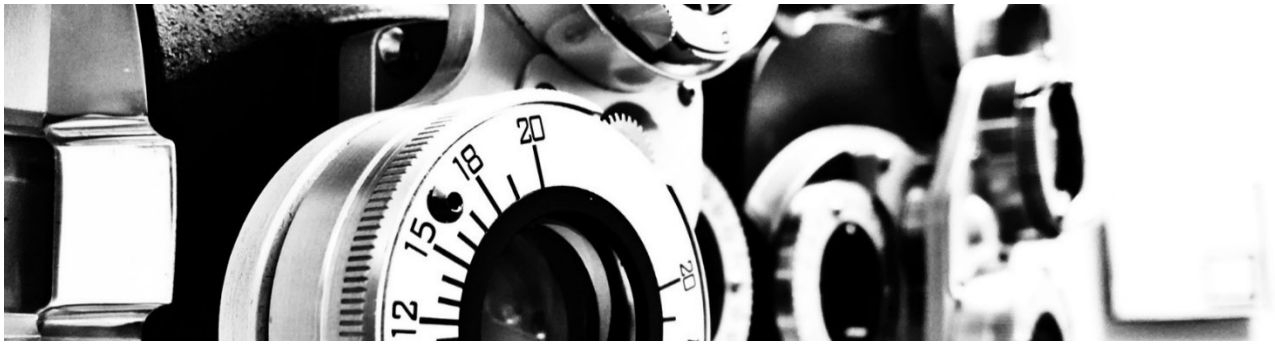
Brianna Samson

bc2hunte@uwaterloo.ca (Email this address if you would like a copy of the results)

Master of Science in Vision Science Candidate

University of Waterloo, School of Optometry and Vision Science

Under the supervision of: Dr. Paul J. Murphy and Dr. Shamrozé Khan



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Petit rappel!

Bonjour,

J'espère que vous vous souvenez de mon premier message. Je m'appelle Brianna et je suis étudiante à la maîtrise à l'Université de Waterloo. Je vous écris pour vous rappeler mon message précédent au sujet d'un sondage que je mène auprès des étudiants en optométrie de première année concernant leurs motivations, influences et attentes relatives à leur choix de carrière dans l'optométrie au Canada et aux États-Unis. Si vous n'y avez pas encore répondu, j'apprécierais énormément votre aide.

Vous trouverez dans ce courriel un lien vers le sondage. Répondre au sondage prend environ **10 minutes**. Il contient des questions sur des données démographiques, les raisons de votre choix de l'optométrie, les raisons concernant votre choix d'école, votre exposition à ce secteur avant d'intégrer le programme et vos attentes pour votre carrière d'optométriste.

Vous trouverez plus de détails au début du sondage. Cette étude a été évaluée et a reçu une approbation éthique du Bureau de l'éthique de la recherche de l'Université de Waterloo.

La participation est très appréciée, et est volontaire. À la fin du sondage, vous aurez la chance de participer à un tirage au sort pour gagner l'une des cinq cartes cadeau Amazon de 50 $, en remerciement pour votre participation.

Le sondage sera disponible jusqu'au 31 janvier 2020, alors pensez à le remplir avant cette date.

Merci beaucoup pour votre temps.

LIEN : https://quark.uwaterloo.ca/redcap/surveys/?s=3R7ETJHPJ4

Sincères salutations,

Brianna Samson

bc2hunte@uwaterloo.ca (Si vous souhaitez recevoir une copie des résultats, veuillez écrire à cette adresse)

Candidate à la maîtrise en sciences de la vision

Université de Waterloo, School of Optometry and Vision Science

Sous la supervision de : Dr Paul J. Murphy and Dre Shamrozé Khan

3) Video Script: This is what is said in my promotional video.

Hello! My name is Brianna and I am a Master's candidate at the University of Waterloo, School of Optometry and Vision Science. I am here to invite you to participate in a study I am conducting on why optometry students choose optometry as a career.

You will soon be sent a questionnaire by e-mail on our behalf, from a local representative at your optometry school. The questionnaire will take approximately 10 minutes to complete and relates to your motivations for choosing optometry as a career and for choosing the School or College you are training at. We are also asking questions about your expectations as a future optometrist. All your answers will be anonymous and confidential. You are welcome to withdraw at any time during the survey, though once the questionnaire has been submitted you will no longer be able to withdraw, as we will not know which response is yours.

By participating, you will helping us have a better understanding of students' motivations and expectations within the Optometry degree, possibly improving support for future students. Your School or College representative will also get a copy of your Schools results to help them understand your classes' attitudes and expectations more clearly. As a thank you for your participation in the study, at the end of the questionnaire you can enter a draw to win 1 of 5 $50 Amazon gift cards by entering your school e-mail address.

This study has been reviewed by and received ethics clearance from the University of Waterloo, Office of Research Ethics.

The final decision about participation is yours, but we encourage you to take part since the more students who complete the survey, the more useful the results will be.

If you are interested in participating, please read the e-mail for further information and open the link to the survey. Please check the button when prompted that you are consenting to your participation.

Your help in this project is greatly appreciated.

Thank you! Bye!

Hyperlink: https://www.youtube.com/watch?v=KRMj9c9PLKM&feature=youtu.be

Script de la vidéo : Voici le contenu de ma vidéo promotionnelle. La vidéo promotionnelle sera jouée avant que les étudiants ne reçoivent le courriel.

Bonjour! Je m'appelle Brianna, je suis candidate à la maîtrise à l'Université de Waterloo, dans la School of Optometry and Vision Science. Je m'adresse à vous pour vous inviter à participer à une étude qui porte sur les raisons pour lesquelles les étudiants choisissent une carrière en optométrie.

Vous recevrez bientôt un questionnaire de notre part, envoyé par courriel à un représentant dans votre école d'optométrie. Répondre au questionnaire prendra environ 10 minutes et abordera vos motivations pour avoir choisi une carrière dans l'optométrie et pour avoir choisi l'école ou le collège où vous étudiez. Nous vous posons également des questions sur vos attentes en tant que futur optométriste. Toutes vos réponses seront anonymes et confidentielles. Vous pouvez choisir de quitter le questionnaire à tout moment, mais une fois soumis, vous n'aurez pas la possibilité de le retirer, car nous ne pourrons pas identifier quelle réponse est la vôtre.

Votre participation nous aidera à mieux comprendre les motivations et les attentes des étudiants en optométrie, ce qui pourrait potentiellement améliorer le soutien offert aux futurs étudiants. Le représentant de votre école ou collège recevra également une copie des résultats de votre établissement afin de mieux comprendre l'attitude et les attentes de votre cohorte.

Pour vous remercier de votre participation, à la fin du questionnaire, vous pouvez participer à un tirage pour gagner l'une des cinq cartes cadeau Amazon de 50 $ en entrant votre adresse courriel universitaire.

Cette étude a été étudiée par le Bureau de l'éthique de la recherche de l'Université de Waterloo, qui lui a accordé son approbation éthique.

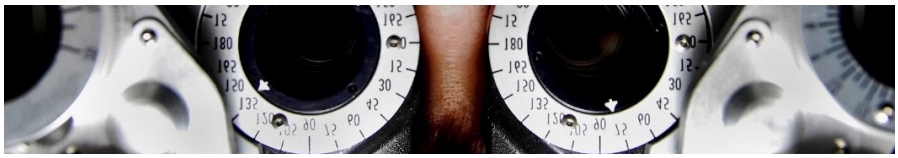
La décision finale de participer ou non vous revient, mais nous vous y encourageons. En effet, plus nous recueillerons de réponses d'étudiants, plus les résultats seront utiles.

Si vous souhaitez participer, veuillez lire ce courriel pour plus d'informations et ouvrir le lien vers le sondage. Veuillez cocher la case correspondante pour consentir à participer.

Votre aide dans ce projet est grandement appréciée. Merci! Au revoir.

Hyperlien : https://www.youtube.com/watch?v=KRMj9c9PLKM&feature=youtu.be

4) Poster



*Free image from pixabay.com

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Recruiting for new CAN AM student survey!

Thank you for your interest in this exciting new project.

What we are trying to learn?

The purpose of this study is to investigate the motivations, and expectations of optometry students for choosing optometry as a career and for choosing their School or College for their training.

There is very little information about current optometry students and this will allow us to have a better understanding of their thoughts and expectations in the career.

About the study.

Participants will be asked to complete an online questionnaire that will take approximately 10 minutes to complete.

Questions include: demographics, motivations for choosing optometry, motivations for choosing your training institution, exposure to the field and expectations for your future

What are the requirements?

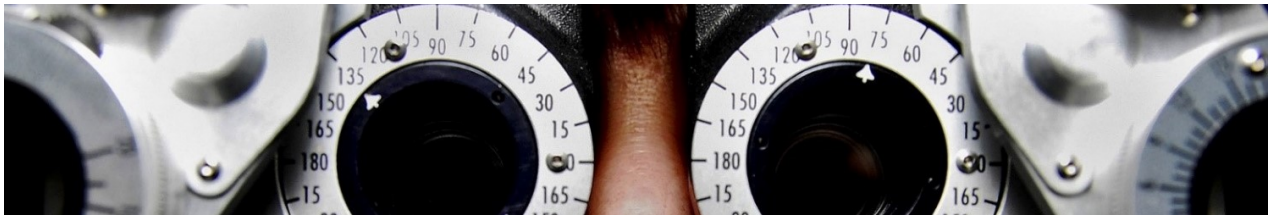
We are asking for first year Optometry students in Canada and the USA to participate.

Reimbursement.

In appreciation for your time, at the end of the survey you are invited to enter a draw for 1 of 5 $50 Amazon gift cards.

How to participate.

If you are interested in participating, please follow the link in your e-mail for further details -Thank You for your Participation



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Recrutement pour un nouveau sondage CANADA É.-U. des étudiants en optométrie

Merci de votre intérêt envers ce nouveau projet prometteur!

Que voulons-nous apprendre?

Cette étude vise à révéler les motivations et les attentes des étudiants en optométrie relatives à leur choix de carrière ainsi que d'école ou de collège pour leur formation. Présentement, nous disposons de très peu d'informations au sujet des étudiants en optométrie. Cette étude nous permettra de mieux comprendre leurs idées et leurs attentes au sujet de leur carrière.

À propos de l'étude

Les participants rempliront un questionnaire en ligne. Cela prendra environ 10 minutes. Les questions récolteront des renseignements démographiques sur les participants, ce qui les a motivés à choisir l'optométrie et leur institut de formation, leur exposition au domaine et leurs attentes pour l'avenir.

Toutes les réponses sont traitées de façon anonyme et confidentielle.

Quelles sont les exigences?

Nous nous adressons aux étudiants en première année d'optométrie au Canada et aux É.-U.

Compensation

Pour vous remercier pour votre temps, à la fin du sondage, vous pourrez participer à un tirage pour gagner l'une des cinq cartes cadeau Amazon de 50 $.

Comment participer

Si vous souhaitez participer, veuillez suivre le lien contenu dans votre courriel. Il vous donnera tous les détails. - Merci de votre participation!

Appendix D

Pilot Study: Results in Full

University of Waterloo Optometry Student Survey Results 2019

Program Year:

Table 8-1 The number and percentage of students in first and fourth year represented in the pilot study.

Program Year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	First Year	77	66.4	66.4	66.4
	Fourth Year	39	33.6	33.6	100.0
	Total	116	100.0	100.0	

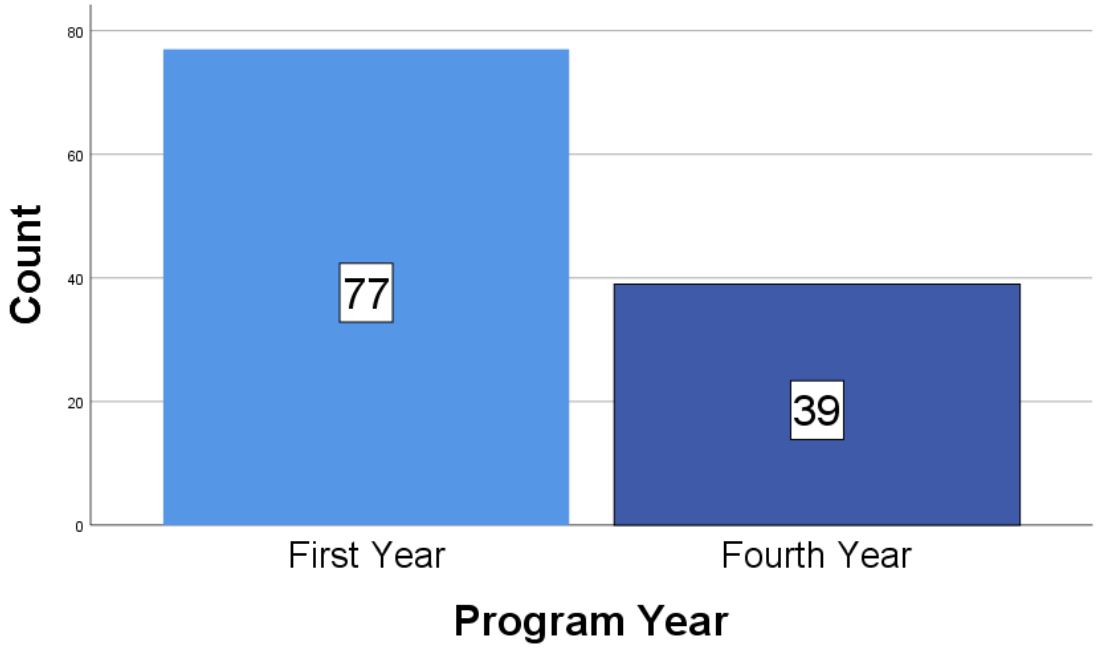

Figure 8-1 The number of students in first year and fourth year represented in the pilot study.

Gender by Year:

Table 8-2 Gender identified by first- and fourth-year optometry students in the pilot study.

		Program Year			
		First Year		Fourth Year	
		Count	Column Valid N %	Count	Column Valid N %
Gender	Male	21	27.3%	10	25.6%
	Female	56	72.7%	29	74.4%
	Transgender	0	0.0%	0	0.0%
	Prefer not to disclose	0	0.0%	0	0.0%
	Other	0	0.0%	0	0.0%

Student Ages:

*Students were only asked their current age, not their age when they began the course.

Table 8-3 A crosstabulation of the ages of students in first- and fourth-year optometry

Current Age * Program Year Crosstabulation

			Program Year		
			First Year	Fourth Year	Total
Current Age	20-22 years old	Count	51	0	51
		Expected Count	33.9	17.1	51.0
		% within Current Age	100.0%	0.0%	100.0%
		% within Program Year	66.2%	0.0%	44.0%
		% of Total	44.0%	0.0%	44.0%
	23-25 years old	Count	24	24	48
		Expected Count	31.9	16.1	48.0
		% within Current Age	50.0%	50.0%	100.0%
		% within Program Year	31.2%	61.5%	41.4%
		% of Total	20.7%	20.7%	41.4%
	26-28 years old	Count	2	15	17
		Expected Count	11.3	5.7	17.0
		% within Current Age	11.8%	88.2%	100.0%
		% within Program Year	2.6%	38.5%	14.7%
		% of Total	1.7%	12.9%	14.7%
Total		Count	77	39	116
		Expected Count	77.0	39.0	116.0
		% within Current Age	66.4%	33.6%	100.0%
		% within Program Year	100.0%	100.0%	100.0%
		% of Total	66.4%	33.6%	100.0%

Table 8-4 Chi-square testing shows an association between the age of a student and their program year.

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	54.322[a]	2	<.001
Likelihood Ratio	69.272	2	<.001
Linear-by-Linear Association	53.474	1	<.001
N of Valid Cases	116		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.72.

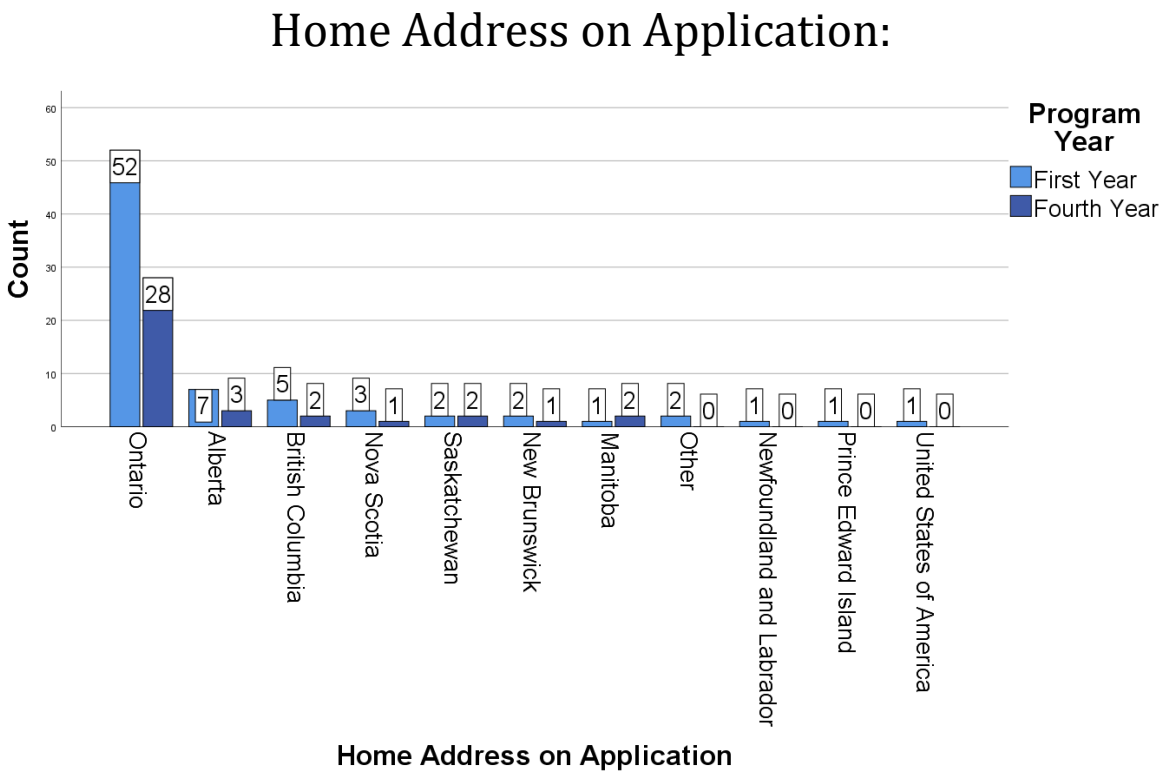

Figure 8-2 Students' home address on application to optometry, separated by program year.

Home Community Size:

Table 8-5 The number and percentage of first- and fourth-year students home community size at the time of application to optometry.

		Home Community Size									
		<1,000 people		1,000-29,999 people		30,000-99,999 people		100,000-299,999 people		300,000+ People	
		#	%	#	%	#	%	#	%	#	%
Program Year	First Year	1	1.3%	16	21.1%	12	15.8%	15	19.7%	32	42.1%
	Fourth Year	0	0.0%	5	12.8%	2	5.1%	13	33.3%	19	48.7%
	Total	1	0.9%	21	18.3%	14	12.2%	28	24.3%	51	44.3%

Primary Language:

Table 8-6 The primary language of optometry students in first and fourth year.

		Primary Language					
		English		French		Other	
		Count	%	Count	%	Count	%
Program Year	First Year	73	94.8%	0	0.0%	4	5.2%
	Fourth Year	38	97.4%	0	0.0%	1	2.6%
	Total	111	95.7%	0	0.0%	5	4.3%

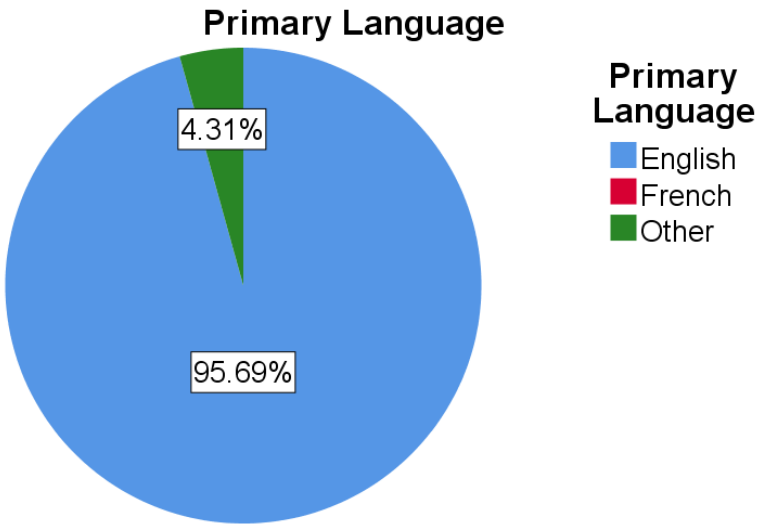

Figure 8-3 The primary language of first- and fourth-year optometry students. Students *Other* responses are list below.

Other: Arabic, English and Polish, Albanian, Punjabi, English and Cantonese

Optometry as First Career Choice:

Table 8-7 A crosstabulation of optometry being a first-choice career for first- and fourth-year optometry students.

Was optometry their first-choice career * Program Year Crosstabulation

Count

		Program Year		
		First Year	Fourth Year	Total
Was optometry their first-choice career	Yes	70	30	100
	No	7	9	16
Total		77	39	116

Table 8-8 Chi-square testing shows an association between program year and whether optometry was a students first choice career.

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.259[a]	1	.039		
Continuity Correction[b]	3.164	1	.075		
Likelihood Ratio	4.026	1	.045		
Fisher's Exact Test				.049	.040
Linear-by-Linear Association	4.222	1	.040		
N of Valid Cases	116				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.38.

b. Computed only for a 2x2 table

The Age Students' Chose Optometry as a Career:

Table 8-9 The age at which students chose to pursue optometry as a career, separated by program year.

		Age student chose Optometry as a career									
		Before I was 10 years old		10-14 years old		15-18 years old		19-25 years old		26 years or older	
		Count	%	Count	%	Count	%	Count	%	Count	%
Program Year	First Year	3	3.9%	15	19.5%	21	27.3%	38	49.4%	0	0.0%
	Fourth Year	1	2.6%	4	10.3%	12	30.8%	22	56.4%	0	0.0%
	Total	4	3.4%	19	16.4%	33	28.4%	60	51.7%	0	0.0%

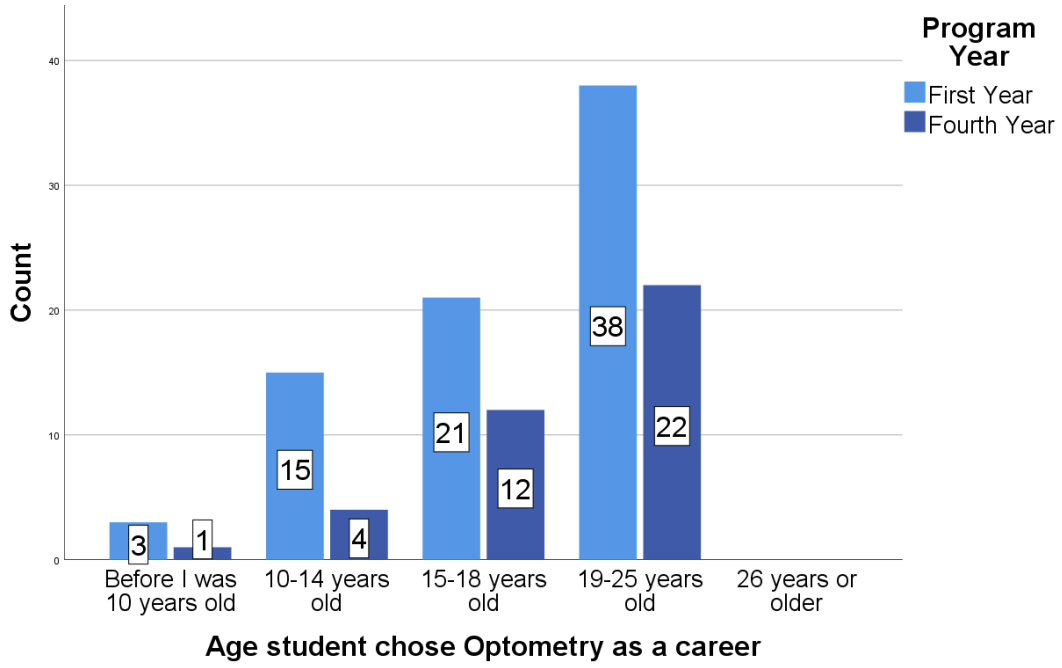

Figure 8-4 The age at which students chose to pursue optometry as a career, separated by program year.

Optometrists' Most Important Role:

Table 8-10 A summary of what first- and fourth-year students felt was the most important role of an optometrist. On a scale of 1 to 5, 1 was the most important and 5 was the least important.

	Program Year											
	First Year						Fourth Year					
	1 Count	2 Count	3 Count	4 Count	5 Count	Total Count	1 Count	2 Count	3 Count	4 Count	5 Count	Total Count
Supplying Glasses	1	1	2	6	16	26	0	0	0	4	4	8
Dispensing Glasses	8	10	16	20	7	61	4	8	15	4	5	36
Eye Health Check	57	10	4	1	1	73	23	7	3	1	1	35
Dispensing Contact Lenses	0	0	1	5	8	14	0	0	0	2	4	6
Educating Patient	3	17	22	12	9	63	8	8	9	9	4	38
Referring Patient	0	3	10	16	20	49	0	3	1	8	13	25
Treating Patient	4	28	14	9	8	63	1	10	7	8	4	30
Don't Know	1	0	0	0	0	1	0	0	0	0	0	0
Other	0	0	0	0	0	0	2	0	1	0	1	4

Table 8-11 A total count and weighted sum of what first- and fourth-year students felt was the most important role of an optometrist. The larger the sum, the more important students felt it was. The top five most important roles are highlighted in yellow.

	Program Year			
	First Year Total		Fourth Year Total	
	Count	Sum	Count	Sum
Eye Health Check	73	340	35	155
Treating Patient	63	200	30	86
Educating Patient	63	182	38	121
Dispensing Glasses	61	175	36	110
Referring Patient	49	94	25	44
Supplying glasses	26	43	8	12
Dispensing Contact Lenses	14	21	6	8
I Don't Know	1	5	0	
Other	0	.	4	14

Areas of Study:

Table 8-12 The number and percentage of students interested in each area of study, separated by program year. Students selected all areas of study that interested them.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Study Areas of Interest	Biology	72	93.5%	34	87.2%
	Physics	26	33.8%	14	35.9%
	Chemistry	41	53.2%	25	64.1%
	Math	30	39.0%	16	41.0%
	Business	16	20.8%	8	20.5%
	Art	15	19.5%	8	20.5%
	Trades (eg. ophthalmic lab technician)	6	7.8%	2	5.1%
	English	8	10.4%	4	10.3%
	Health studies/ Anatomy and Physiology	61	79.2%	30	76.9%
	Hospitality Services	9	11.7%	3	7.7%
	Law	7	9.1%	2	5.1%
	Foreign Languages	13	16.9%	9	23.1%
	Other	2	2.6%	1	2.6%

Top 5 Reasons for choosing Optometry:

Table 8-13 A summary of the top five reasons first- and fourth-year students chose optometry. On a scale of 1 to 5, 1 was the most important and 5 was the least important.

	Program Year											
	First Year						Fourth Year					
	1	2	3	4	5	Total	1	2	3	4	5	Total
	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count
Job Availability/Job Security	4	7	7	13	10	41	1	3	3	7	5	19
Interest in Health Science/Eye Health	18	16	8	7	9	58	12	13	1	2	1	29
Desire to Help People	18	18	11	9	6	62	8	7	5	5	3	28
Need to Challenge Self	0	2	5	4	5	16	1	1	5	2	1	10
Good Work/Life balance	20	19	13	11	5	68	10	11	7	4	2	34
Job Autonomy/ Business Owner	2	2	5	5	6	20	2	0	1	5	4	12
Pay and Benefits	1	5	14	8	17	45	0	1	7	5	11	24
Family Expectation	0	0	2	2	4	8	0	1	2	2	0	5
Reputation/ Prestige	0	0	0	7	3	10	0	0	2	0	2	4
Having the title "Doctor"	0	0	2	2	2	6	1	0	1	3	2	7
Childhood Experience	8	3	3	3	2	19	2	0	2	2	1	7
Did not get into first choice	2	0	0	1	0	3	1	1	0	0	0	2
Cooperation with other professionals	0	1	2	1	3	7	0	0	1	1	1	3
Career Aptitude test	0	0	0	0	0	0	0	0	0	0	0	0
No particular reason	1	0	0	0	0	1	0	0	0	0	2	2
Other	0	0	1	0	1	2	0	0	0	0	2	2

Table 8-14 A total count and weighted sum of the top five reasons first- and fourth-year students chose optometry as a career. The larger the sum, the more important students felt it was. The top five reasons are highlighted in yellow.

	Program Year			
	First Year Total		Fourth Year Total	
	Count	Sum	Count	Sum
Good Work/Life Balance	68	242	34	125
Desire to Help People	62	219	28	96
Interest in Health Science/ Eye Health	58	201	29	120
Job Availability/ Job Security	41	105	19	45
Pay and Benefits	45	100	24	46
Childhood Experience	19	69	7	21
Job Autonomy/ Business Owner	20	49	12	27
Need to Challenge Self	16	36	10	29
Reputation/Prestige	10	17	4	8
Cooperation with other professionals	7	15	3	6
Family Expectation	8	14	5	14
Having the title "Doctor"	6	12	7	16
Did not get into first choice	3	12	2	9
No particular reason	1	5	2	2
Other	2	4	2	2
Career Aptitude test	0	.	0	.

Number of Offers of Admission:

** Did not ask the number of schools to which students applied.

Table 8-15 The number of offers of admission first- and fourth-year students received.

		Program Year	
		First Year Count	Fourth Year Count
Number of offers of admission	1	49	27
	2	14	6
	3	9	1
	4	2	3
	5+	2	1

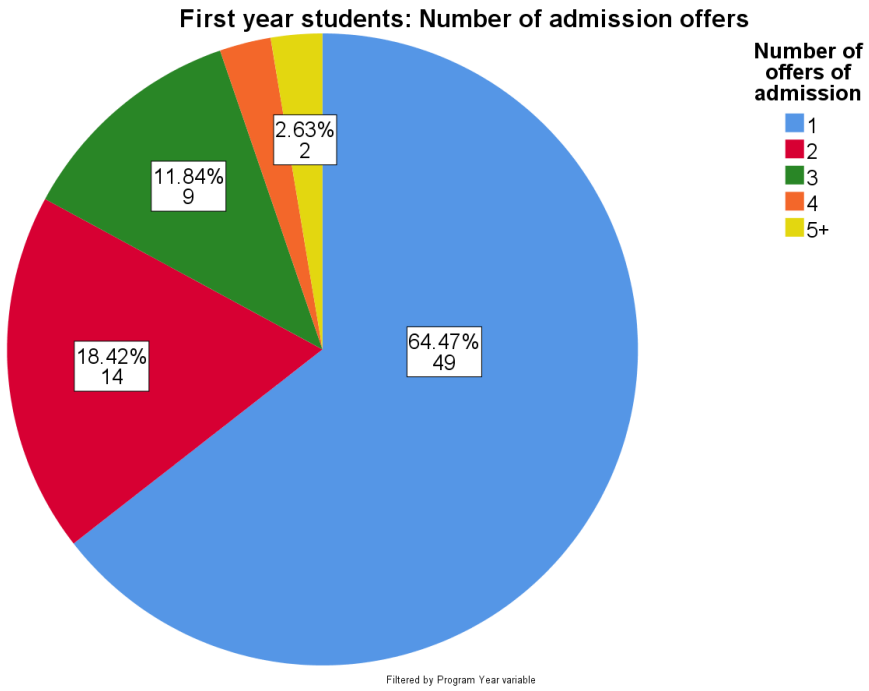

Figure 8-5 The percentage of the number of offers of admission first-year optometry students received.

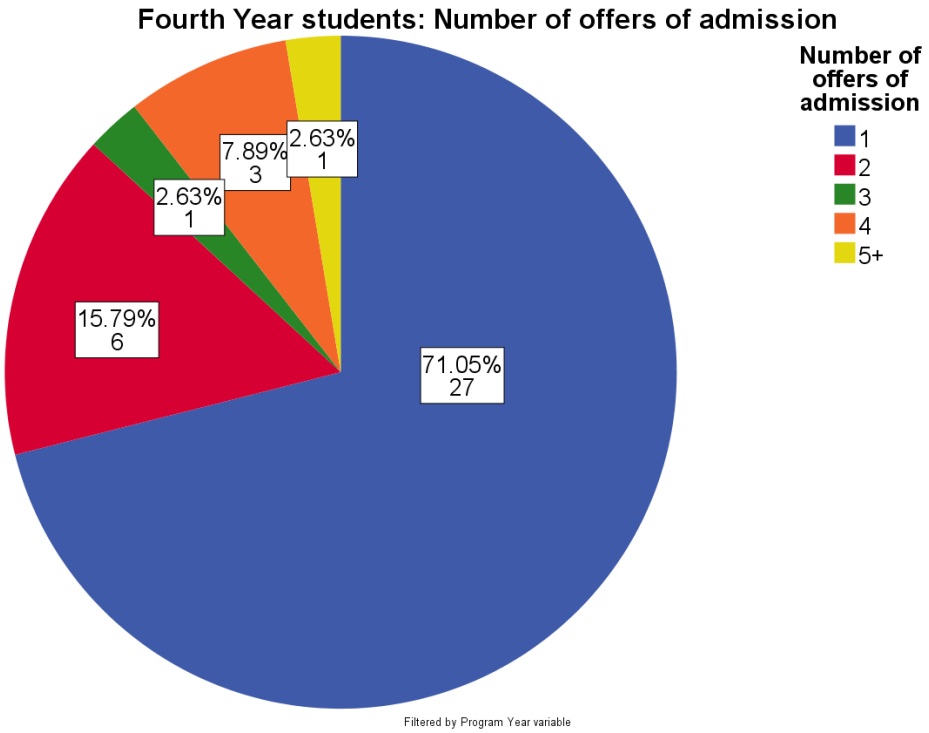

Figure 8-6 The percentage of the number of offers of admission fourth-year optometry students received.

UW as First School Choice:

Missing: 2 respondents

Table 8-16 A crosstabulation of the University of Waterloo being first- and fourth-year optometry students first choice of training institution.

Was the current university the students first choice? * Program Year Crosstabulation

			Program Year		
			First Year	Fourth Year	Total
Was the current university the students first choice?	Yes	Count	72	38	110
		Expected Count	73.3	36.7	110.0
		% within Was the current university the students first choice?	65.5%	34.5%	100.0%
		% within Program Year	94.7%	100.0%	96.5%
		% of Total	63.2%	33.3%	96.5%
	No	Count	4	0	4
		Expected Count	2.7	1.3	4.0
		% within Was the current university the students first choice?	100.0%	0.0%	100.0%
		% within Program Year	5.3%	0.0%	3.5%
		% of Total	3.5%	0.0%	3.5%
Total		Count	76	38	114
		Expected Count	76.0	38.0	114.0
		% within Was the current university the students first choice?	66.7%	33.3%	100.0%
		% within Program Year	100.0%	100.0%	100.0%
		% of Total	66.7%	33.3%	100.0%

Table 8-17 There was no significant association between the University of Waterloo being students first choice and their program year ($p<0.05$). Fisher's exact test was used as it was a 2x2 table and assumptions for Chi-square testing were not met.

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.073[a]	1	.150		
Continuity Correction[b]	.810	1	.368		
Likelihood Ratio	3.316	1	.069		
Fisher's Exact Test				.299	.192
Linear-by-Linear Association	2.055	1	.152		
N of Valid Cases	114				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.33.

b. Computed only for a 2x2 table

Top 5 Reasons for choosing to train at UW:

Table 8-18 A summary of the top five reasons first- and fourth-year students chose to train at the University of Waterloo. On a scale of 1 to 5, 1 was the most important and 5 was the least important.

	Program Year											
	First Year						Fourth Year					
	1 N	2 N	3 N	4 N	5 N	Total Count	1 N	2 N	3 N	4 N	5 N	Total Count
University Reputation	1	5	10	12	15	43	2	4	9	7	6	28
Program Reputation	3	7	6	12	11	39	3	2	9	12	6	32
Location was Close to Home	5	9	19	10	11	54	4	8	4	6	3	25
Location in Area I Want to Live	5	8	7	10	7	37	0	3	0	6	3	12
Program Cost	21	22	11	5	4	63	7	14	7	2	5	35
Influence of Family/Friend	0	2	5	5	5	17	0	0	3	0	3	6
Influence of Media/ Promotional Material	0	0	1	0	1	2	0	0	0	0	0	0
First choice not Available	0	0	0	0	0	0	0	1	0	0	0	1
Only English School in Canada	38	16	7	6	4	71	23	5	5	3	0	36
Scholarships or Grants	0	0	1	4	1	6	0	0	1	0	1	2
Program curriculum	1	0	0	0	4	5	0	0	0	1	7	8
Other	0	0	0	0	0	0	0	1	0	1	3	5

Table 8-19 A total count and weighted sum of the top five reasons first- and fourth-year students chose to train at the University of Waterloo. The larger the sum, the more important students felt it was. The top five reasons are highlighted in yellow.

	Program Year			
	First Year Total		Fourth Year Total	
	Count	Sum	Count	Sum
Only English School in Canada	71	291	36	156
Program Cost	63	240	35	121
Location was Close to Home	54	149	25	79
Location in Area I Want to Live	37	105	12	27
Program Reputation	39	96	32	80
University Reputation	43	94	28	73
Influence of Family/Friend	17	38	6	12
Scholarships or Grants	6	12	2	4
Program Curriculum	5	9	8	9
Influence of Media/ Promotional Material	2	4	0	.
First choice not Available	0	.	1	4
Other	0	.	5	9

Student Debt:

Table 8-20 A crosstabulation of students' optometry debt separated by program year

Student Debt * Program Year Crosstabulation

Count

		Program Year					
		First Year	%	Fourth Year	%	Total	%
Student Debt	No debt	7	9.1%	3	7.7%	10	8.6%
	$1-$25,000	4	5.2%	1	2.6%	5	4.3%
	$25,000-$50,000	11	14.3%	9	23.1%	20	17.2%
	$50,000-$75,000	18	23.4%	6	15.4%	24	20.7%
	$75,000-$100,000	16	20.1%	8	20.5%	24	20.7%
	$100,000-$125,000	13	16.9%	7	17.9%	20	17.2%
	$125,000-$150,000	5	6.5%	2	5.1%	7	6.0%
	$150,000-$175,000	2	2.6%	3	7.7%	5	4.3%
	$200,000+	1	1.3%	0	0	1	0.9%
Total		77	100.0%	39	100.0%	116	100.0%

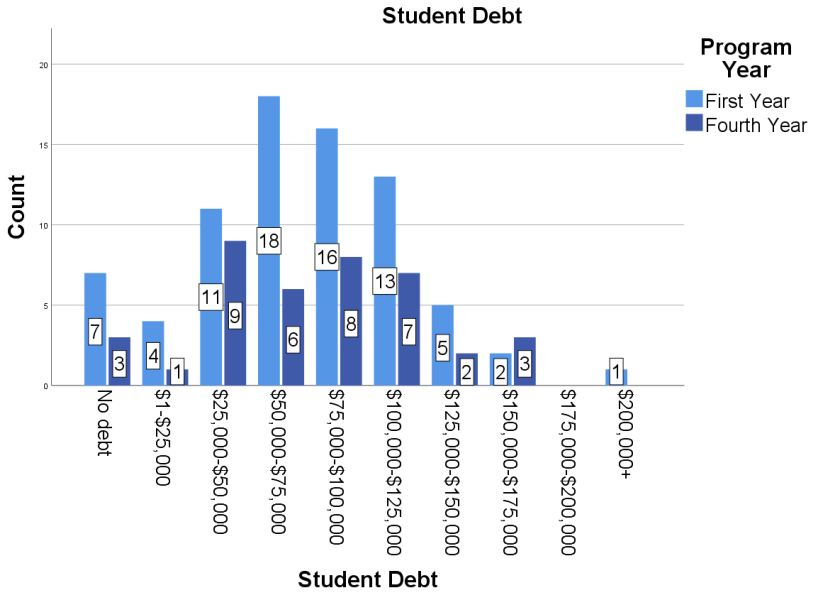

Figure 8-7 Optometry student debt separated by program year.

Exposure to Eye Conditions:

Table 8-21 The number and percentage of first- and fourth-year optometry students who had experience with eye conditions.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Exposure to eye conditions	Yes, I do	14	18.2%	6	15.4%
	Yes, my parent	15	19.5%	7	17.9%
	Yes, a close relative	36	46.8%	16	41.0%
	Yes, a close friend	12	15.6%	5	12.8%
	No	17	22.1%	14	35.9%

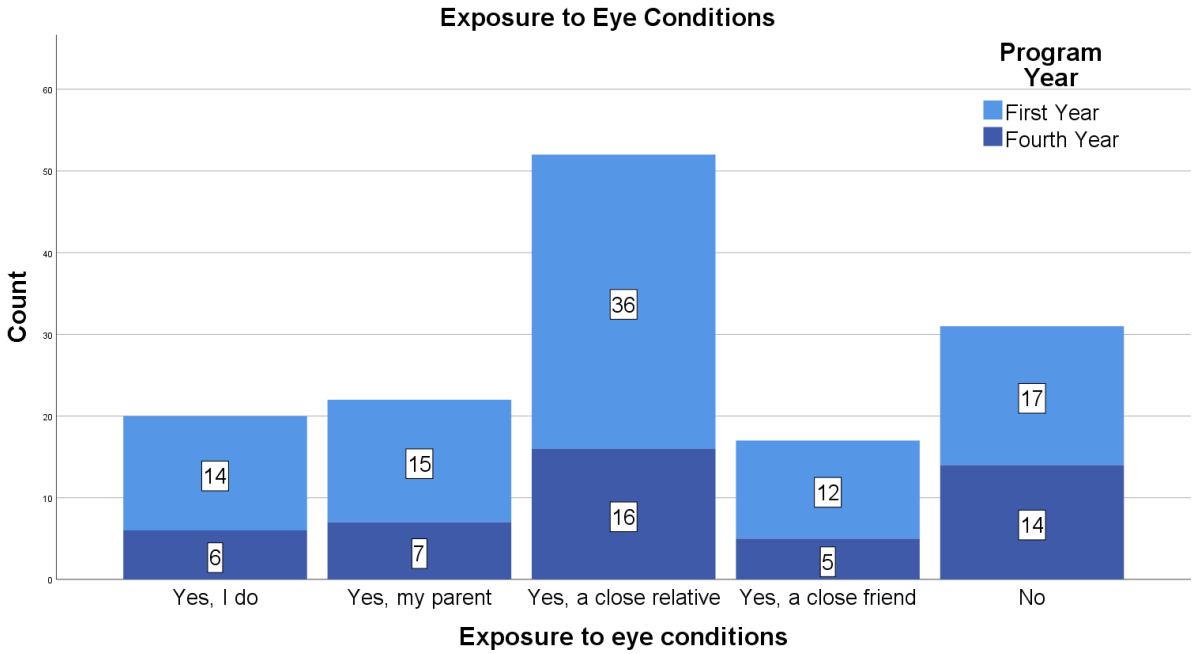

Figure 8-8 The number of University of Waterloo optometry students who had experience with eye conditions.

Exposure to Glasses and Contact lenses:

Table 8-22 The number and percentage of first- and fourth-year optometry students who wear glasses, contact lenses, and neither.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Exposure to glasses or contact lenses	Yes, Glasses	63	81.8%	37	94.9%
	Yes, Contact lenses	40	51.9%	29	74.4%
	No	14	18.2%	2	5.1%

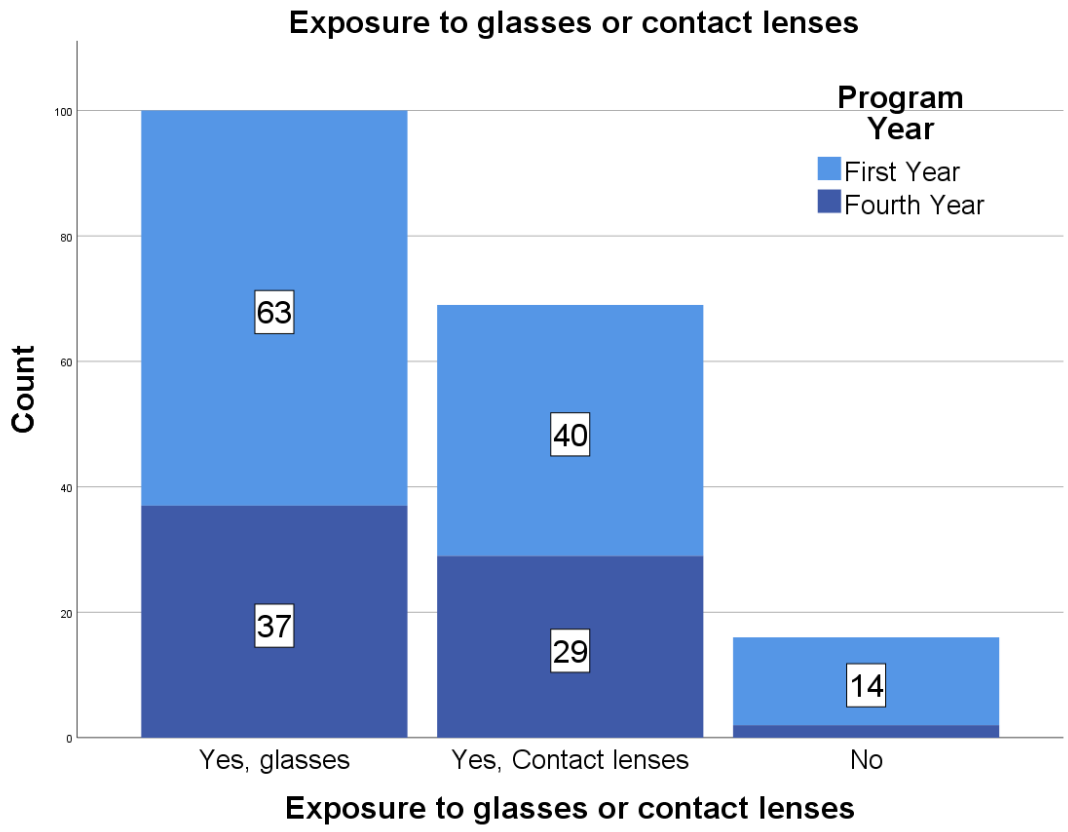

Figure 8-9 The number of University of Waterloo optometry students who wear glasses, contact lenses, or neither.

Exposure to an Optometrist:

Table 8-23 The number and percentage of first- and fourth-year optometry students who had reported a close relationship with an optometrist.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Exposure to an Optometrist	Yes, my parent	2	2.6%	0	0.0%
	Yes, a close relative	7	9.1%	1	2.6%
	Yes, a close friend	7	9.1%	5	12.8%
	No, I have no family or friends who are optometrists	61	79.2%	33	84.6%

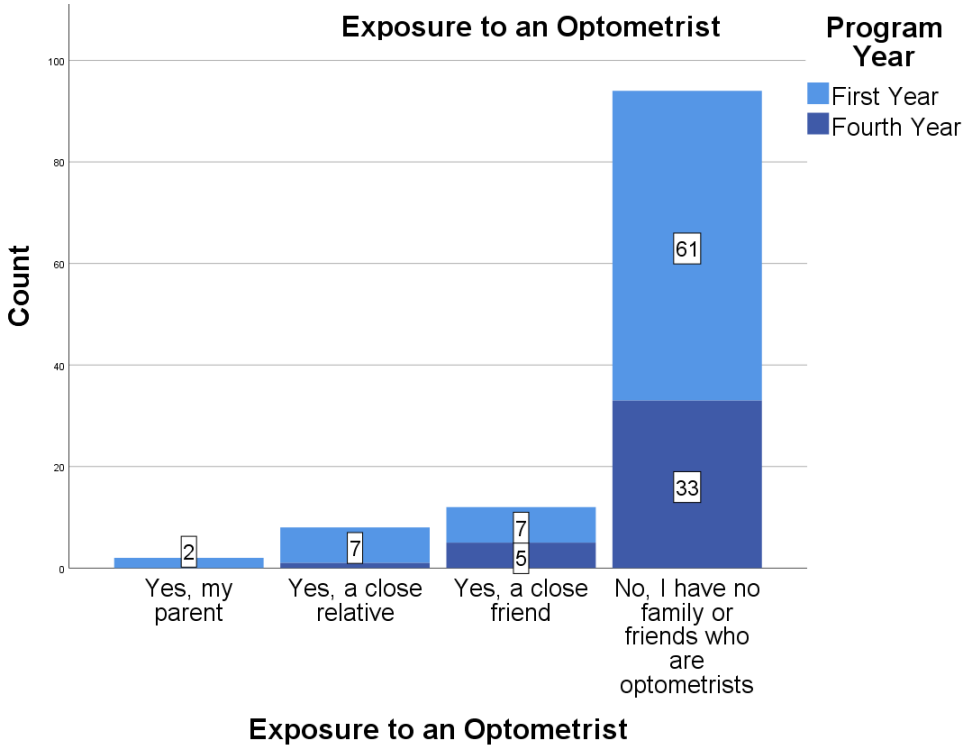

Figure 8-10 The number of University of Waterloo optometry students who had reported a close relationship with an optometrist.

Exposure to Work Experience:

Table 8-24 The number and percentage of first- and fourth-year optometry students who had optometric work experience.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Exposure to work experience	Yes, job shadowing	64	83.1%	34	87.2%
	Yes, volunteer position	33	42.9%	18	46.2%
	Yes, I have worked in an optometry office	37	48.1%	31	79.5%
	No	4	5.2%	1	2.6%

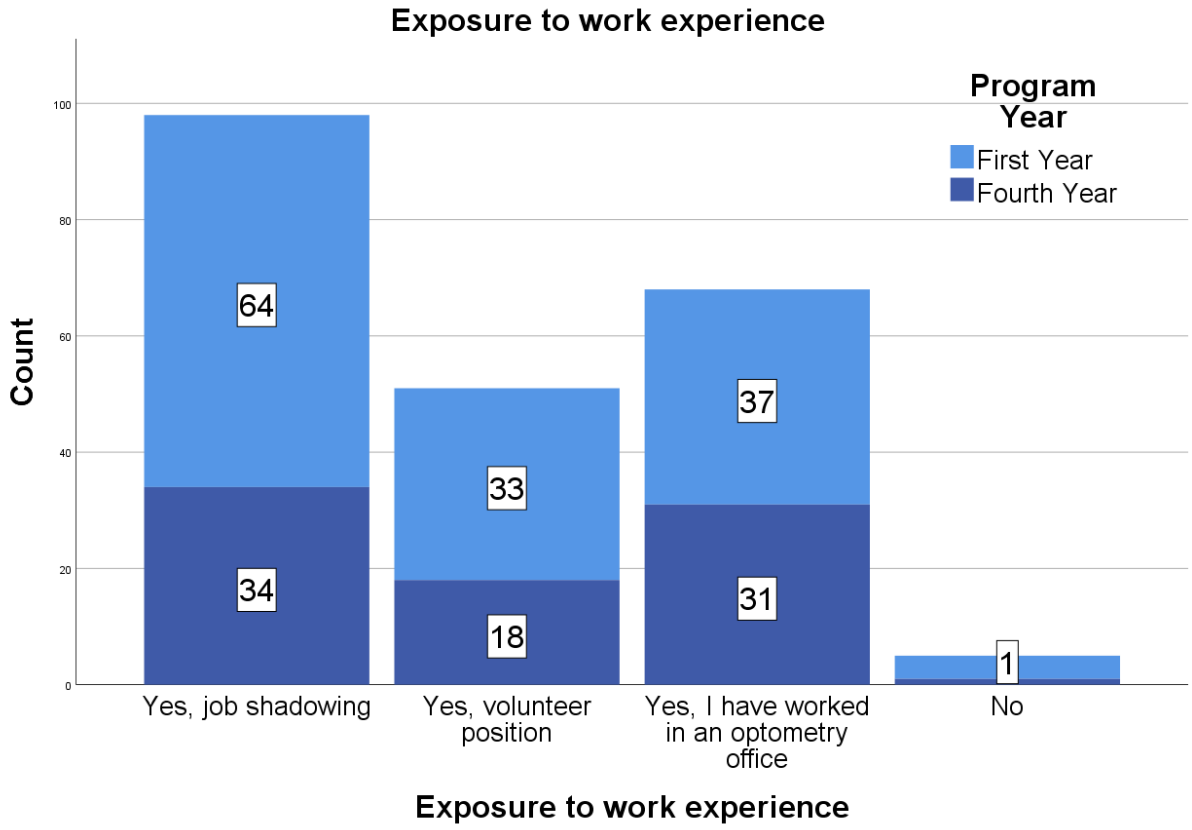

Figure 8-11 The number of University of Waterloo optometry students who had reported optometric work experience.

Did work experience influence the decision?

Table 8-25 The number of first-and fourth-year students who agreed or disagreed that work experience influenced them to choose optometry as a career.

		Program Year	
		First Year Count	Fourth Year Count
Was Work Exposure an Influence in Choosing the career	Yes	63	26
	No	10	10
	Not Applicable	0	1

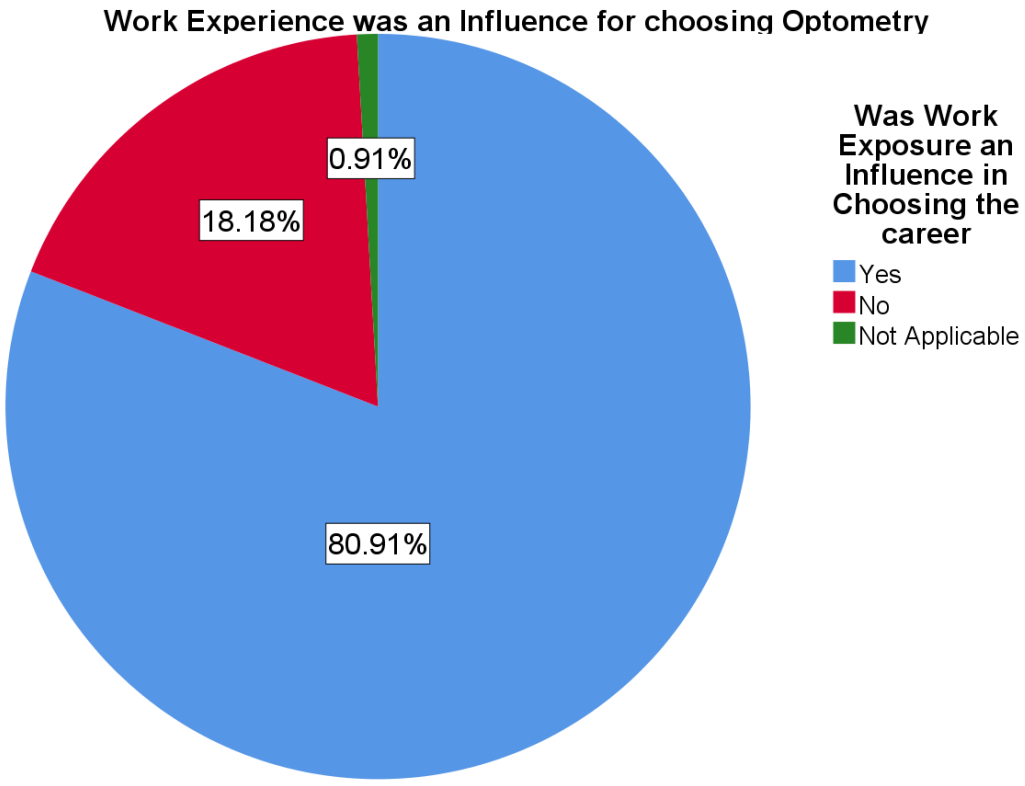

Figure 8-12 The percentage of University of Waterloo students who agreed or disagreed that work experience influenced them to choose optometry as a career.

Mode of Optometry:

Table 8-26 The number and percentage of first- and fourth-year optometry students chosen modes of practice. Students were able to choose any that applied.

		Program Year					
		First Year		Fourth Year		Total	
		Count	%	Count	%	Count	%
Mode of Practice	Private practice (Solo or Partnered)	71	93.4%	39	100.0%	110	95.7%
	Corporate/ Retail Practice	28	36.8%	18	46.2%	46	40.0%
	Hospital Practice	20	26.3%	15	38.5%	35	30.4%
	Academia	12	15.8%	6	15.4%	18	15.7%
	Residency	12	15.8%	8	20.5%	20	17.4%
	Industry-based	6	7.9%	7	17.9%	13	11.3%
	Locum work	0	0.0%	7	17.9%	7	6.1%
	Home visits	9	11.8%	4	10.3%	13	11.3%
	Volunteer work	37	48.7%	24	61.5%	61	53.0%
	Provincial or federal optometric associations	14	18.4%	10	25.6%	24	20.9%
	Undecided	2	2.6%	3	7.7%	5	4.3%
	I do not know	3	3.9%	1	2.6%	4	3.5%

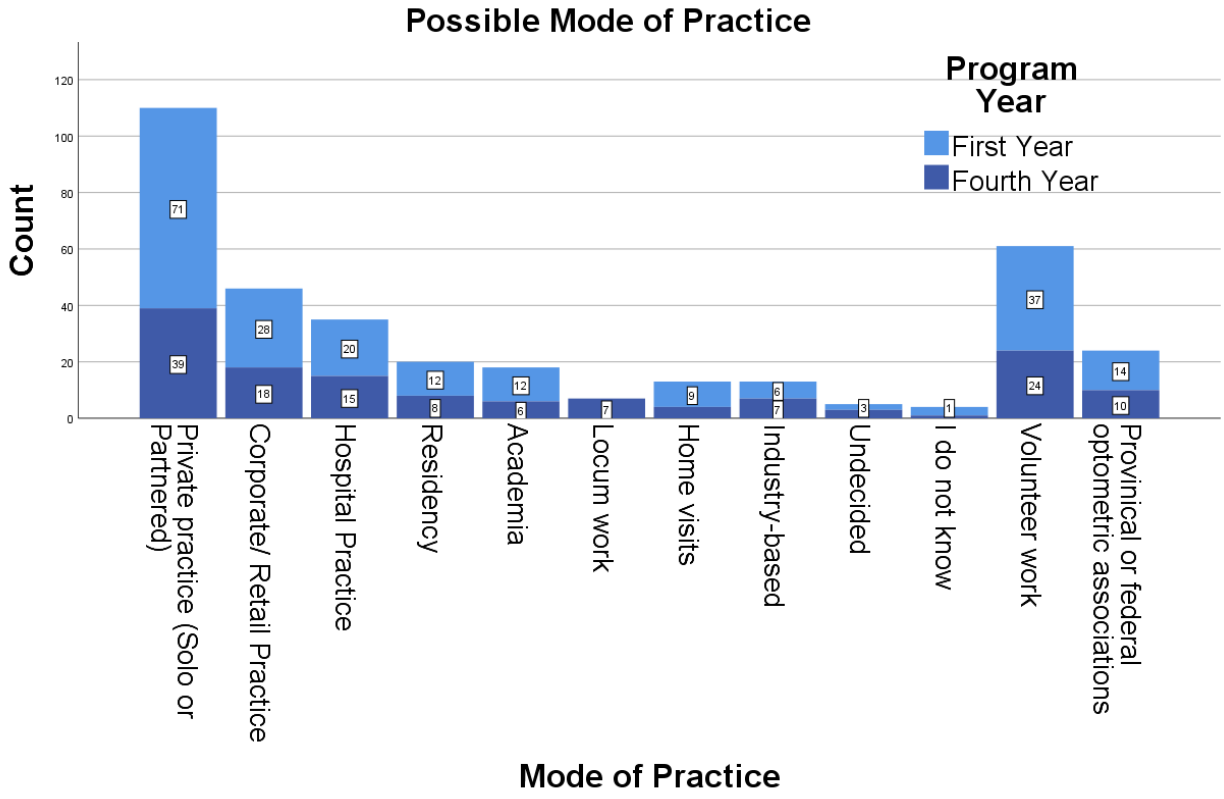

Figure 8-13 The number of first- and fourth-year optometry students chosen modes of practice. Students were able to choose any mode of practice that applied.

Expected Number of Practices to work initially:

Table 8-27 The number of practices first- and fourth-year optometry students expect to work initially.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Number of practices expected to initially work at	1	23	29.9%	8	20.5%
	2	30	39.0%	20	51.3%
	3	16	20.8%	9	23.1%
	4+	2	2.6%	0	0.0%
	I don't know	6	7.8%	2	5.1%

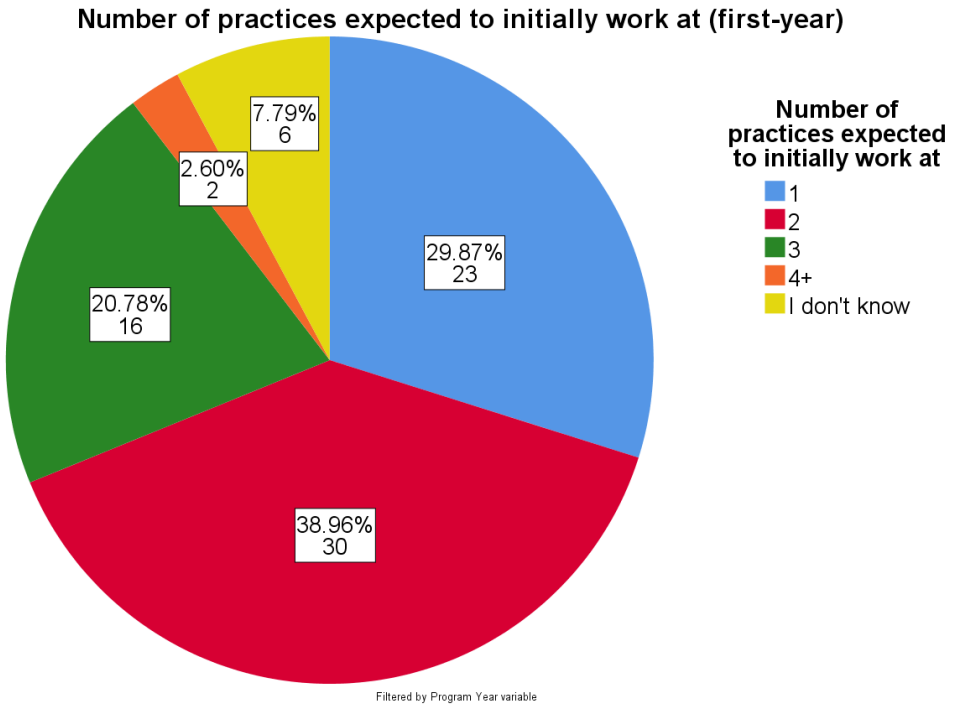

Figure 8-14 A percentage of the number of practices first-year optometry students initially expect to work.

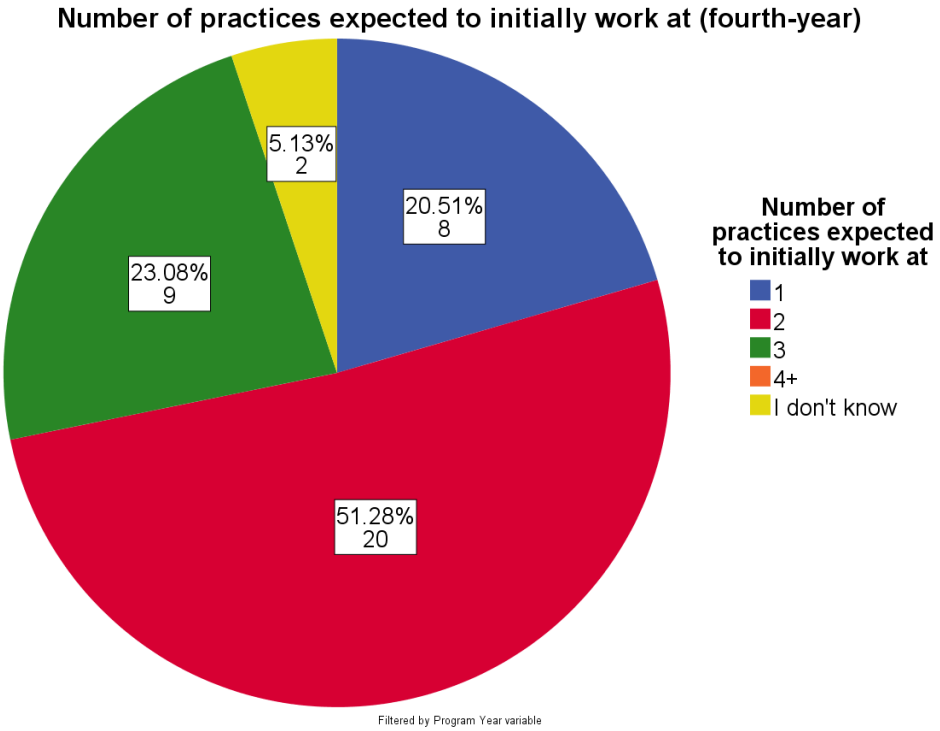

Figure 8-15 A percentage of the number of practices fourth year optometry students initially expect to work.

Anticipated Hours:

Table 8-28 The number and percentage of hours per week, first- and fourth-year optometry students expect to work.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Number of hours expected to work per week	Less than 10 hours	0	0.0%	0	0.0%
	11-20 hours	0	0.0%	1	2.6%
	21-30 hours	12	15.8%	0	0.0%
	31-40 hours	33	43.4%	22	56.4%
	41-50 hours	29	38.2%	14	35.9%
	50+ hours	4	5.3%	3	7.7%

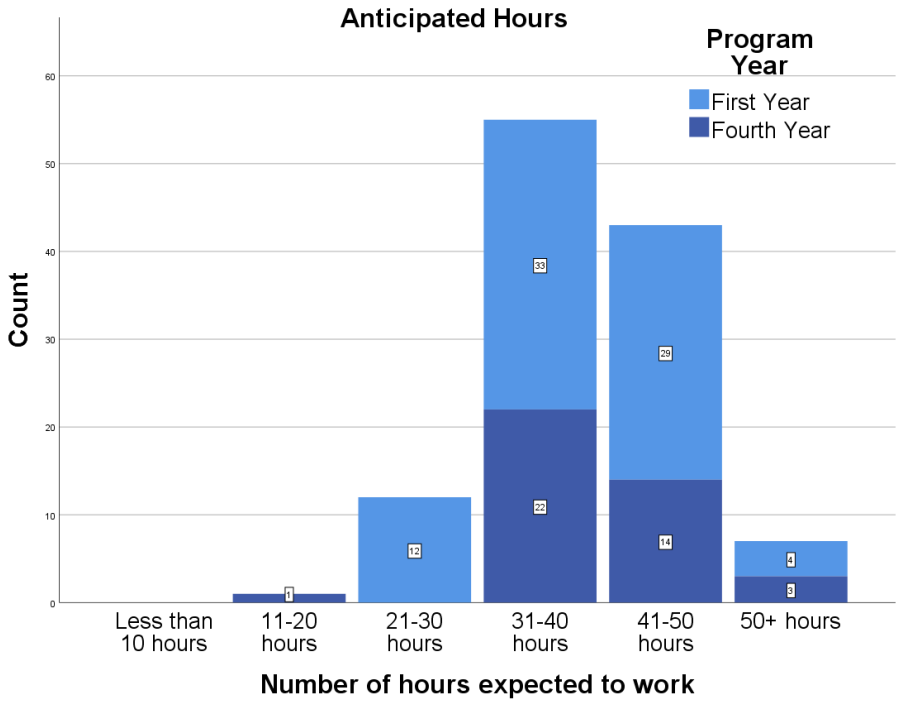

Figure 8-16 The number of hours per week, University of Waterloo optometry students expect to work.

The Expectation for hours to Change:

Table 8-29 The number and percentage of first- and fourth-year students who agree or disagree that there hours will change.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Expectation that hours will change	Yes	71	92.2%	39	100.0%
	No	4	5.2%	0	0.0%
	I don't know	2	2.6%	0	0.0%

Table 8-30 The number and percentage of first- and fourth-year students who believe their hours will increase, decrease, or both.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
How hours are expected to change	My hours will increase	19	26.8%	3	7.7%
	My hours will decrease	31	43.7%	16	41.0%
	My hours will increase and decrease	12	16.9%	16	41.0%
	I don't know	9	12.7%	4	10.3%
	Not Applicable	0	0.0%	0	0.0%

Expected Initial Wage:

Table 8-31 First- and fourth-year optometry students expected income within their first year upon graduating.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Expected Wage	<$60,000	2	2.6%	4	10.5%
	$60,000-$80,000	16	20.8%	15	39.5%
	$80,000-$100,000	35	45.5%	9	23.7%
	$100,000-$120,000	18	23.4%	8	21.1%
	$120,000-$140,000	2	2.6%	1	2.6%
	$140,000-$160,000	3	3.9%	1	2.6%
	$160,000+	0	0.0%	0	0.0%
	I don't Know	1	1.3%	0	0.0%

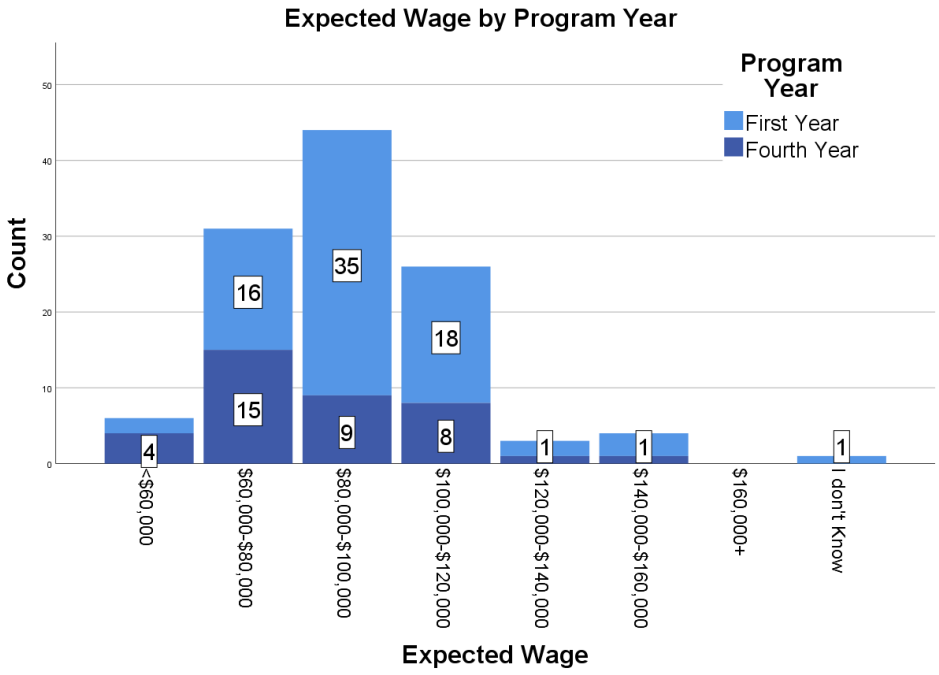

Figure 8-17 University of Waterloo optometry students expected income within their first year upon graduation.

Intent to own a Practice:

Table 8-32 First- and fourth-year optometry student's intent to own their own a practice and an optical dispensary.

		Program Year			
		First Year		Fourth Year	
		Count	Column Valid N %	Count	Column Valid N %
Intent to own a Practice	Yes	39	50.6%	20	51.3%
	No	9	11.7%	7	17.9%
	I don't know	29	37.7%	12	30.8%
Intent to own an Optical Dispensary	Yes	38	86.4%	18	85.7%
	No	0	0.0%	1	4.8%
	I don't know	6	13.6%	2	9.5%

Number of Practices intended to own:

Table 8-33 First- and fourth-year optometry student's intent to own their own practice, and the number of practices they intend to own.

		Program Year			
		First Year		Fourth Year	
		Count	Column Valid N %	Count	Column Valid N %
Intent to own a Practice	Yes	39	50.6%	20	51.3%
	No	9	11.7%	7	17.9%
	I don't know	29	37.7%	12	30.8%
Number of Practices expected to own	I do not intend to own a practice	3	6.7%	1	4.8%
	1 practice	38	84.4%	16	76.2%
	2-5 practices	4	8.9%	3	14.3%
	5+ practices	0	0.0%	1	4.8%

Expected location of Work on Graduation:

Table 8-34 The location in which first- and fourth-year optometry students expect to practice.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Expected location to work	British Columbia	7	9.1%	2	5.1%
	Alberta	16	20.8%	5	12.8%
	Saskatchewan	2	2.6%	2	5.1%
	Manitoba	1	1.3%	2	5.1%
	Ontario	52	67.5%	28	71.8%
	Quebec	0	0.0%	0	0.0%
	New Brunswick	2	2.6%	1	2.6%
	Nova Scotia	6	7.8%	1	2.6%
	Prince Edward Island	1	1.3%	0	0.0%
	Newfoundland and Labrador	1	1.3%	0	0.0%
	Yukon	0	0.0%	0	0.0%
	Northwest Territories	0	0.0%	0	0.0%
	Nunavut	0	0.0%	0	0.0%
	United States of America	2	2.6%	0	0.0%
	Other	0	0.0%	0	0.0%

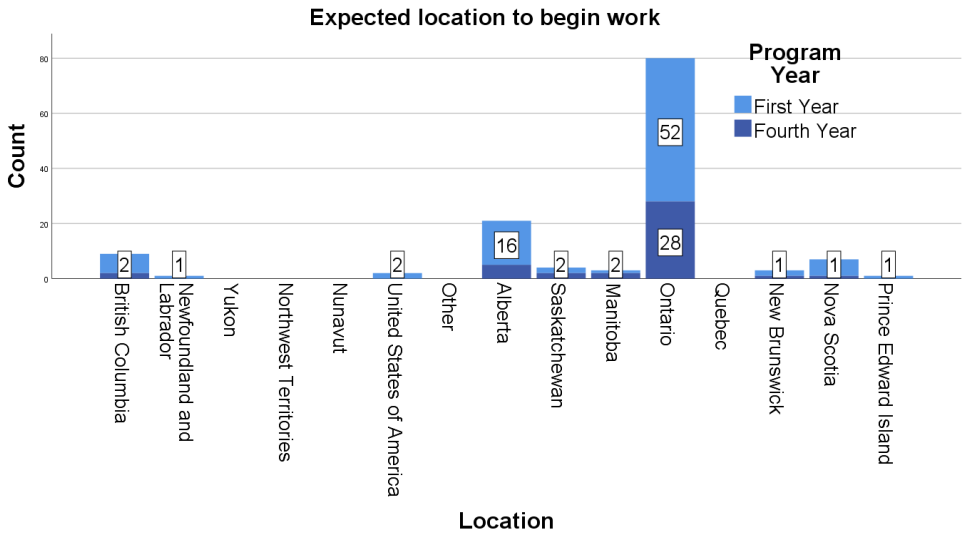

Figure 8-18 The location in which first- and fourth-year optometry students expect to practice.

Table 8-35 The location and size of community in which first- and fourth-year optometry students expect to practice.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Expected location to work	British Columbia	7	9.1%	2	5.1%
	Alberta	16	20.8%	5	12.8%
	Saskatchewan	2	2.6%	2	5.1%
	Manitoba	1	1.3%	2	5.1%
	Ontario	52	67.5%	28	71.8%
	Quebec	0	0.0%	0	0.0%
	New Brunswick	2	2.6%	1	2.6%
	Nova Scotia	6	7.8%	1	2.6%
	Prince Edward Island	1	1.3%	0	0.0%
	Newfoundland and Labrador	1	1.3%	0	0.0%
	Yukon	0	0.0%	0	0.0%
	Northwest Territories	0	0.0%	0	0.0%
	Nunavut	0	0.0%	0	0.0%
	United States of America	2	2.6%	0	0.0%
	Other	0	0.0%	0	0.0%
Expected community size	1,000-29,999 people	14	18.4%	5	12.8%
	30,000-99,999 people	19	25.0%	7	17.9%
	100,000-299,999	26	34.2%	12	30.8%
	300,000+	23	30.3%	15	38.5%

Reasons for Choosing Location:

Table 8-36 First- and fourth-year optometry students' reasons for choosing a practice location.

		Program Year			
		First Year		Fourth Year	
		Count	%	Count	%
Reasons for choosing future location to work	Job prospects/ Job availability	49	63.6%	20	51.3%
	Proximity to family	66	85.7%	34	87.2%
	Proximity to significant other	36	46.8%	23	59.0%
	Proximity to friends	37	48.1%	24	61.5%
	Prefer living in the city	35	45.5%	17	43.6%
	Prefer living in the country	24	31.2%	8	20.5%
	Cost of living	38	49.4%	13	33.3%
	Earning potential/ Benefits including Optometric reimbursement	39	50.6%	16	41.0%
	Demand/ Filling in a void	17	22.1%	10	25.6%
	Other	0	0.0%	2	5.1%

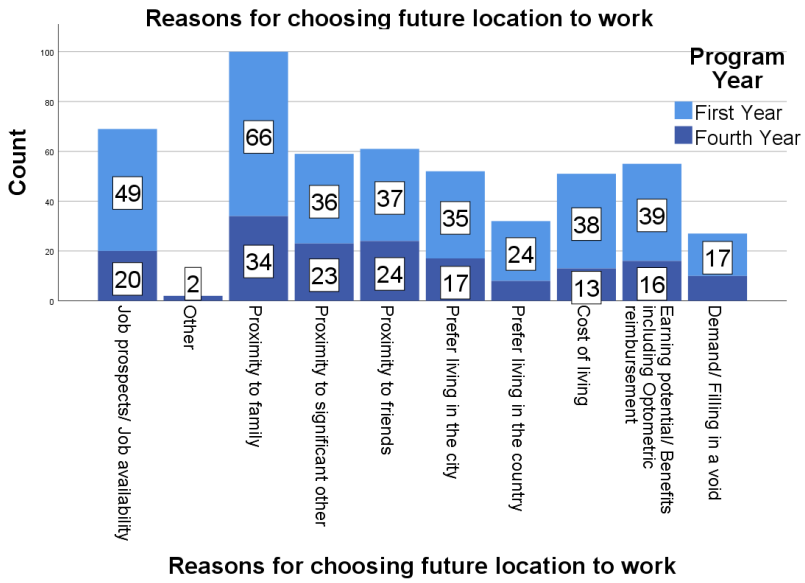

Figure 8-19 First- and fourth-year optometry students' reasons for choosing a practice location.

Appendix E

Main Study: Result in full

Canada-American Optometry Student Survey Results 2020

Surveys completed in Full:

Table 8-37 The total number of questionnaires completed. **The incomplete questionnaires here include the two questionnaires that were eliminated due to lack of consent and lack of response.

Survey completed

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Incomplete	27	10.3	10.3	10.3
	Complete	234	89.7	89.7	100.0
	Total	261	100.0	100.0	

Language survey was completed in:

Table 8-38 The number of surveys completed in French and English.

Language

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	English	253	96.9	96.9	96.9
	French	8	3.1	3.1	100.0
	Total	261	100.0	100.0	

Institute Student was enrolled at:

Table 8-39 School and College of Optometry representation on whole.

School/ College of Optometry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Ferris State University, Michigan College of Optometry	11	4.2	4.2	4.2
	Marshall B. Ketchum, Southern California College of Optometry	18	6.9	6.9	11.2
	Southern College of Optometry	37	14.2	14.3	25.5
	The Ohio State University, College of Optometry	22	8.4	8.5	34.0
	Illinois College of Optometry	18	6.9	6.9	40.9
	University of California Berkeley, School of Optometry	21	8.0	8.1	49.0
	University of Houston, College of Optometry	16	6.1	6.2	55.2
	University of Missouri-Saint Louis, College of Optometry	7	2.7	2.7	57.9
	Université de Montréal, École d'Optométrie	18	6.9	6.9	64.9
	University of Pikeville, Kentucky College of Optometry	49	18.8	18.9	83.8
	University of Waterloo, School of Optometry and Vision Science	42	16.1	16.2	100.0
	Total	259	99.2	100.0	
Missing	System	2	.8		
Total		261	100.0		

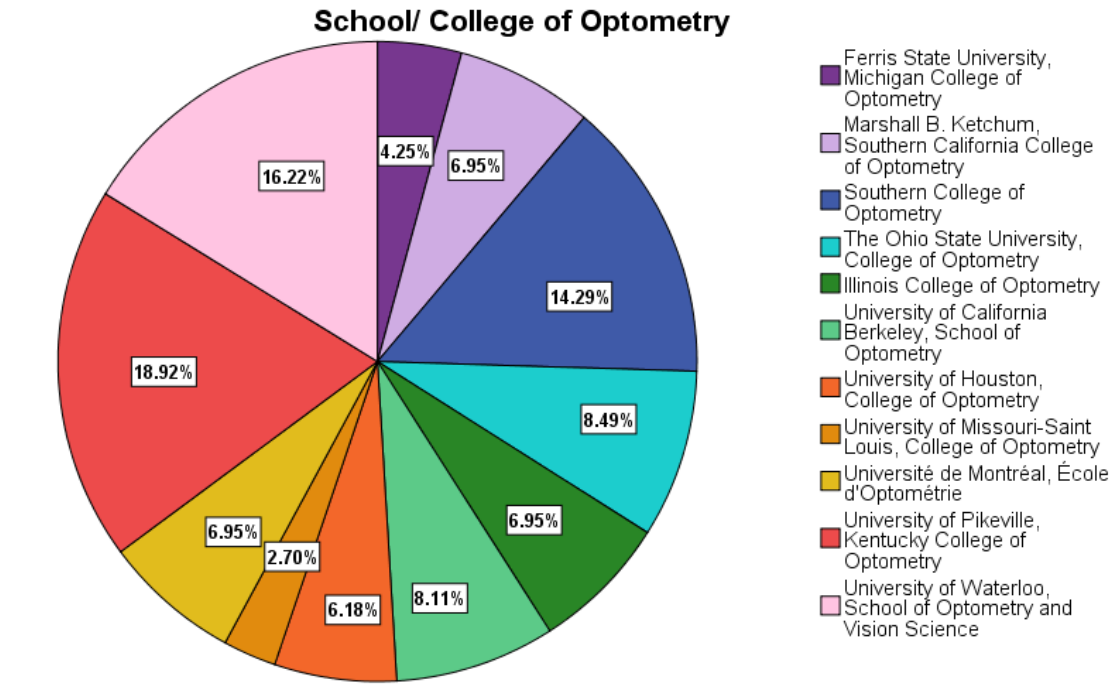

Figure 8-20 The percentage of each School or College's representation within the main study.

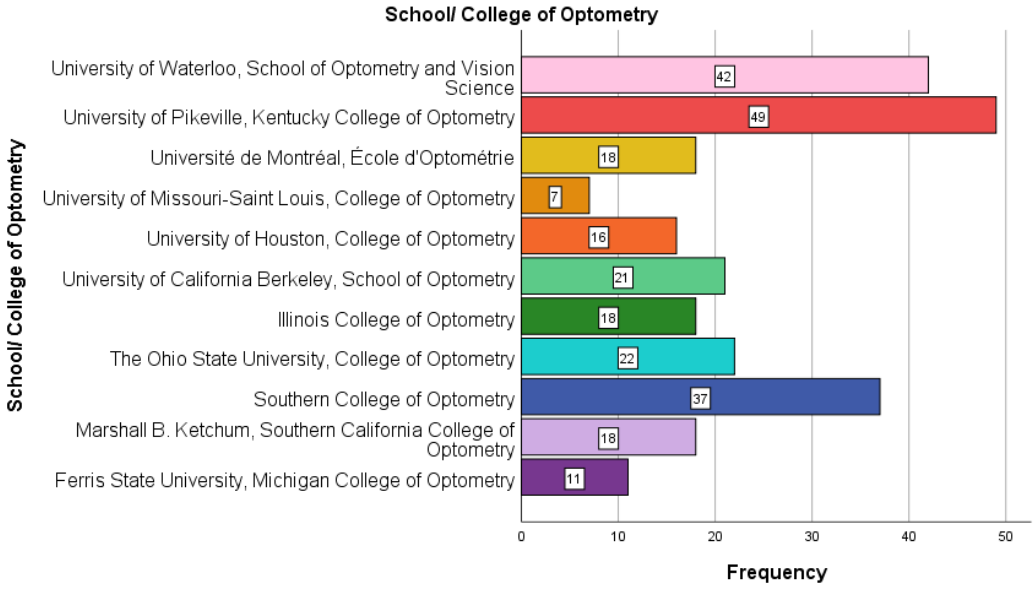

Figure 8-21 The number of students from each School or College.

Gender:

Table 8-40 Gender-identified by students studying in Canada and the USA

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	68	26.1	26.3	26.3
	Female	191	73.2	73.7	100.0
	Total	259	99.2	100.0	
Missing	System	2	.8		
Total		261	100.0		

** No students chose “Transgender,” “Prefer not to disclose,” or “Other”

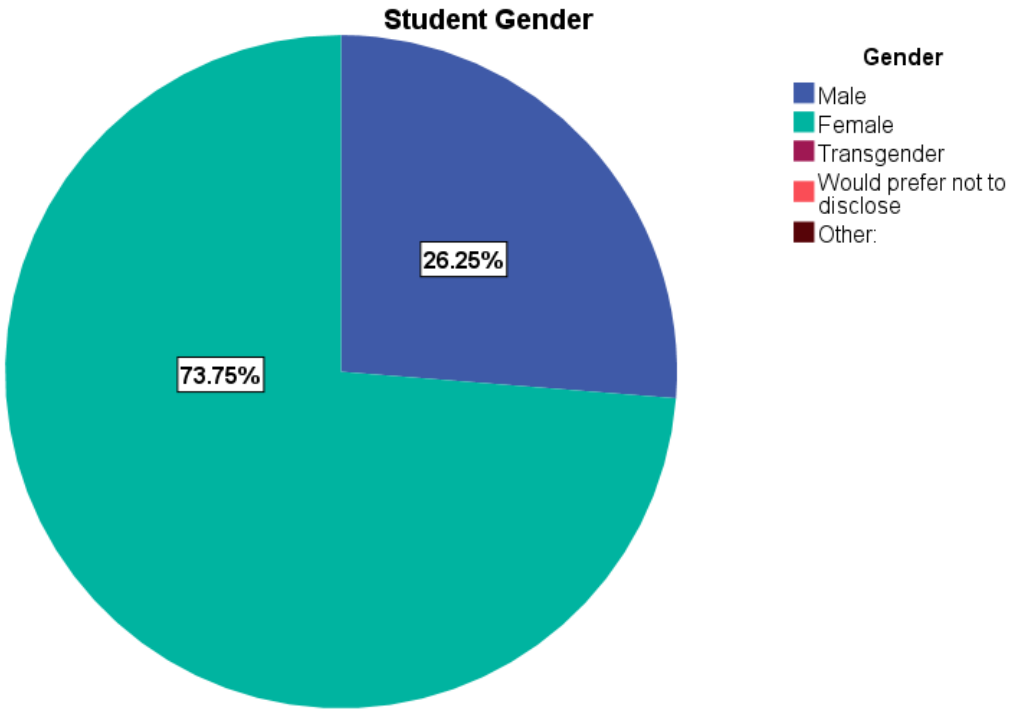

Figure 8-22 Gender identified by optometry students in the main study.

Student Age:

Table 8-41 First-year optometry student's age (mean, median and mode).

Statistics

Age

N	Valid	243
	Missing	18
Mean		23.20
Median		23.00
Mode		22
Std. Deviation		2.177
Range		16
Minimum		19
Maximum		35

Table 8-42 A full summary of First-year optometry student's age

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	19	1	.4	.4	.4
	20	4	1.5	1.6	2.1
	21	29	11.1	11.9	14.0
	22	75	28.7	30.9	44.9
	23	58	22.2	23.9	68.7
	24	29	11.1	11.9	80.7
	25	23	8.8	9.5	90.1
	26	10	3.8	4.1	94.2
	27	4	1.5	1.6	95.9
	28	4	1.5	1.6	97.5
	31	3	1.1	1.2	98.8
	32	1	.4	.4	99.2
	34	1	.4	.4	99.6
	35	1	.4	.4	100.0
	Total	243	93.1	100.0	
Missing	System	18	6.9		

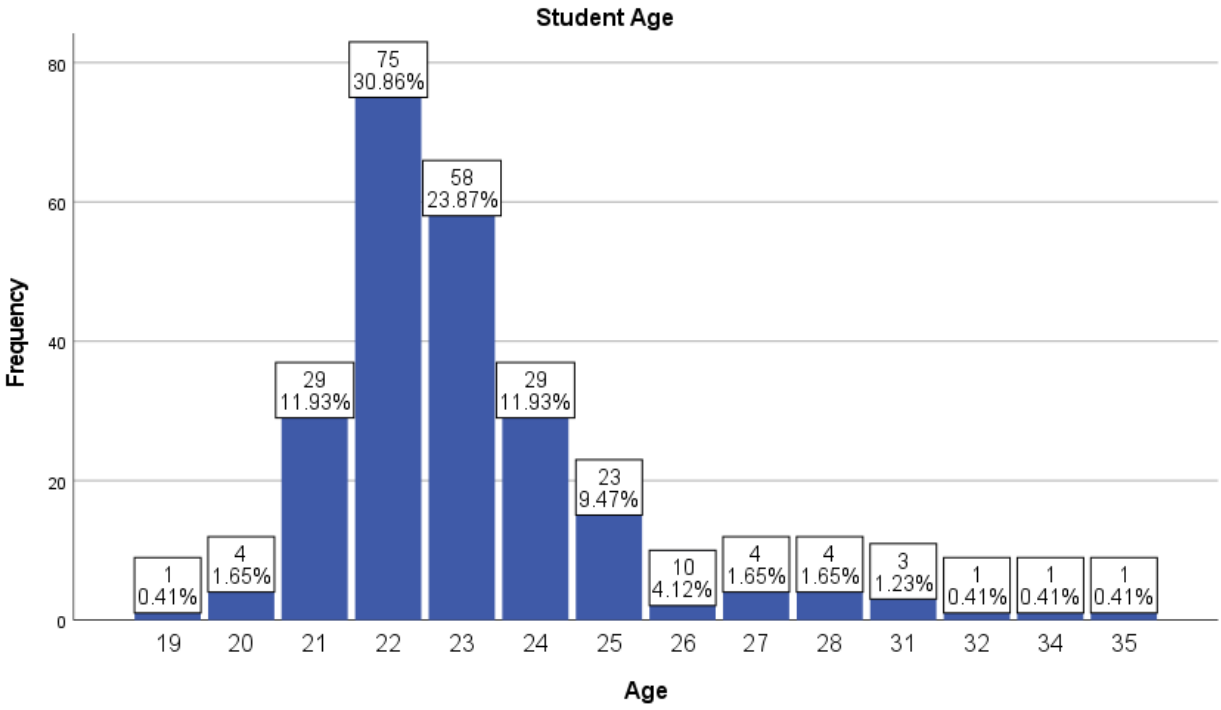

Figure 8-23 First year optometry student's age

**Note 16 responses missing. This was an open question. One result was manually entered as the respondent wrote "20 Ans" which was eliminated because it was not just a number.

Highest Level of Academic Qualifications:

Table 8-43 Optometry students' highest level of education prior to entry in their optometry program

Highest level of Academic Qualifications

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High School and a couple of years of a bachelor's degree	22	8.4	8.5	8.5
	CEGEP	11	4.2	4.3	12.8
	Bachelor's degree	214	82.0	82.9	95.7
	Master's degree	9	3.4	3.5	99.2
	Other post-graduate degree (eg. professional)	2	.8	.8	100.0
	Total	258	98.9	100.0	
Missing	System	3	1.1		
Total		261	100.0		

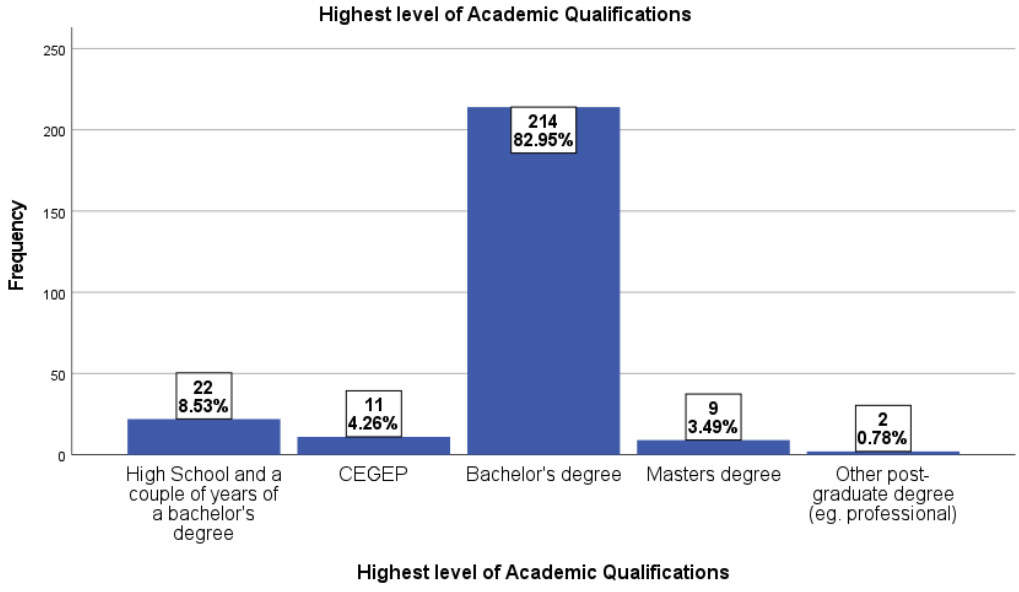

Figure 8-24 Optometry students' highest level of education prior to entry in their optometry program

Home Address on Application:

Table 8-44 Students home address on the application to their optometry training.

Home Address

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Alberta	6	2.3	2.4	2.4
	British Columbia	7	2.7	2.8	5.1
	Manitoba	3	1.1	1.2	6.3
	New Brunswick	2	.8	.8	7.1
	Ontario	35	13.4	13.8	20.9
	Quebec	16	6.1	6.3	27.2
	Arizona	1	.4	.4	27.6
	Arkansas	2	.8	.8	28.3
	California	30	11.5	11.8	40.2
	Florida	3	1.1	1.2	41.3
	Illinois	5	1.9	2.0	43.3
	Indiana	4	1.5	1.6	44.9
	Kansas	4	1.5	1.6	46.5
	Kentucky	13	5.0	5.1	51.6
	Louisiana	7	2.7	2.8	54.3
	Massachusetts	1	.4	.4	54.7
	Michigan	18	6.9	7.1	61.8
	Minnesota	4	1.5	1.6	63.4
	Mississippi	2	.8	.8	64.2
	Missouri	8	3.1	3.1	67.3
	Montana	1	.4	.4	67.7
	Nebraska	4	1.5	1.6	69.3
	Nevada	1	.4	.4	69.7
	New Jersey	2	.8	.8	70.5
	New Mexico	1	.4	.4	70.9
	New York	3	1.1	1.2	72.0
	North Carolina	3	1.1	1.2	73.2
	North Dakota	1	.4	.4	73.6

	Ohio	14	5.4	5.5	79.1
	Pennsylvania	3	1.1	1.2	80.3
	South Dakota	1	.4	.4	80.7
	Tennessee	9	3.4	3.5	84.3
	Texas	21	8.0	8.3	92.5
	Utah	5	1.9	2.0	94.5
	Virginia	5	1.9	2.0	96.5
	Washington	2	.8	.8	97.2
	West Virginia	2	.8	.8	98.0
	Wisconsin	4	1.5	1.6	99.6
	Wyoming	1	.4	.4	100.0
	Total	254	97.3	100.0	
Missing	System	7	2.7		
Total		261	100.0		

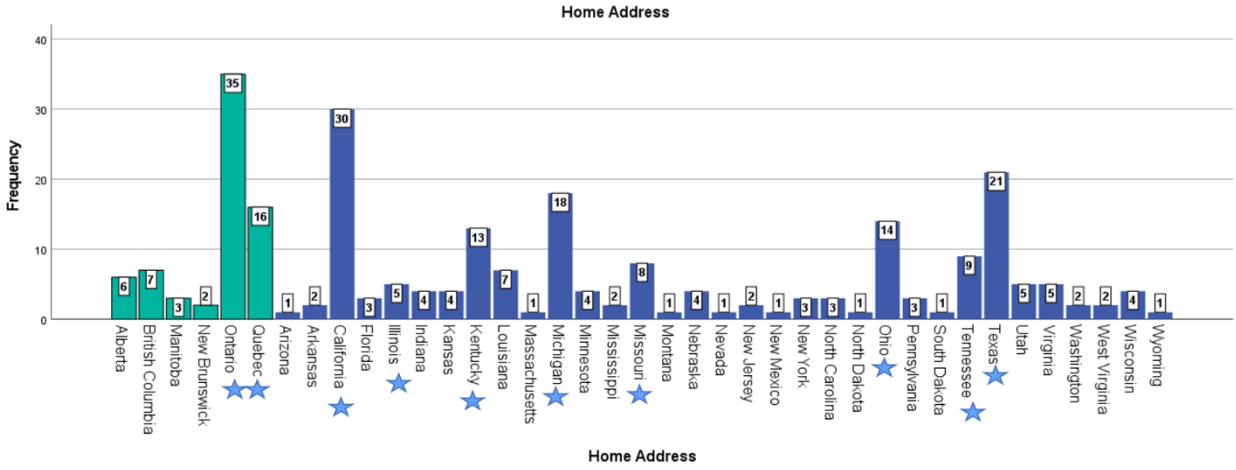

Figure 8-25 Students home address on the application to their optometry training. Provinces and States with a participating School or College of Optometry are indicated by a blue star.

Primary Language:

Table 8-45 Optometry student's primary language

Primary Language

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	English	229	87.7	88.8	88.8
	French	16	6.1	6.2	95.0
	Spanish	2	.8	.8	95.7
	Other:	11	4.2	4.3	100.0
	Total	258	98.9	100.0	
Missing	System	3	1.1		
Total		261	100.0		

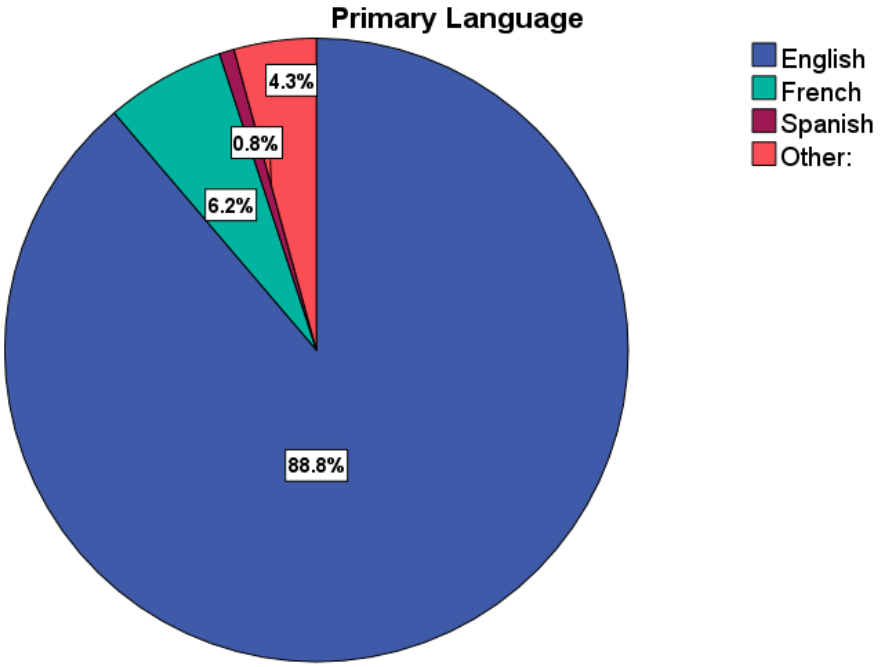

Figure 8-26 Optometry student's primary language.

** "Other" options include: Telugu, Chinese, Arabic, Farsi, Mandarin (3), Urdu (2), Bengali, Bulgare

Optometry as a First Career Choice:

Table 8-46 The number and percentage of students who agreed or disagreed that optometry was their first-choice career.

Was optometry your 1st choice when choosing a career?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	53	20.3	20.5	20.5
	Yes	205	78.5	79.5	100.0
	Total	258	98.9	100.0	
Missing	System	3	1.1		
Total		261	100.0		

"Other" options include: Medicine (27)- variety subspecialties, Dentistry (3), Physical therapy (3), Pharmacy (2), Architect (2), Astronaut, Interior Design, Physician Assistant, Registered Dietician, Ophthalmology, Psychology, Music, Education, Acting, Engineering, Nursing, Ph.D., Undecided (3)

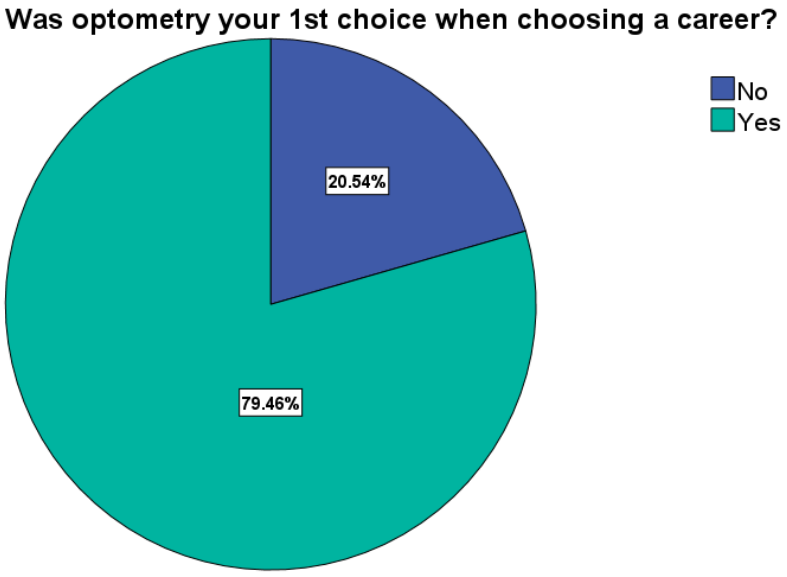

Figure 8-27 The percentage of optometry students who agreed or disagreed that optometry was their first-choice career.

Table 8-47 A crosstabulation of the number and percentage of students who agreed or disagreed that optometry was their first-choice career, separated by country.

Was optometry your 1st choice when choosing a career? * country Crosstabulation

			Country		
			Canada	The United States of America	Total
Was optometry your 1st choice when choosing a career?	No	Count	6	47	53
		% within Was optometry your 1st choice when choosing a career?	11.3%	88.7%	100.0%
		% within country	10.0%	23.7%	20.5%
		% of Total	2.3%	18.2%	20.5%
	Yes	Count	54	151	205
		% within Was optometry your 1st choice when choosing a career?	26.3%	73.7%	100.0%
		% within country	90.0%	76.3%	79.5%
		% of Total	20.9%	58.5%	79.5%
Total		Count	60	198	258
		% within Was optometry your 1st choice when choosing a career?	23.3%	76.7%	100.0%
		% within country	100.0%	100.0%	100.0%
		% of Total	23.3%	76.7%	100.0%

Table 8-48 Chi-square testing showed an association between optometry as a first-choice career and the country students studied in.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.324[a]	1	.021		
Continuity Correction[b]	4.515	1	.034		
Likelihood Ratio	6.011	1	.014		
Fisher's Exact Test				.027	.013
Linear-by-Linear Association	5.303	1	.021		
N of Valid Cases	258				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 12.33.

b. Computed only for a 2x2 table

The Age Students Chose Optometry as a Career:

Table 8-49 The age at which students chose to pursue optometry as a career.

Age student chose to pursue optometry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Before I was 10 years old	15	5.7	5.8	5.8
	10-14 years old	22	8.4	8.5	14.3
	15-18 years old	90	34.5	34.9	49.2
	19-25 years old	126	48.3	48.8	98.1
	26 years or older	5	1.9	1.9	100.0
	Total	258	98.9	100.0	
Missing	System	3	1.1		
Total		261	100.0		

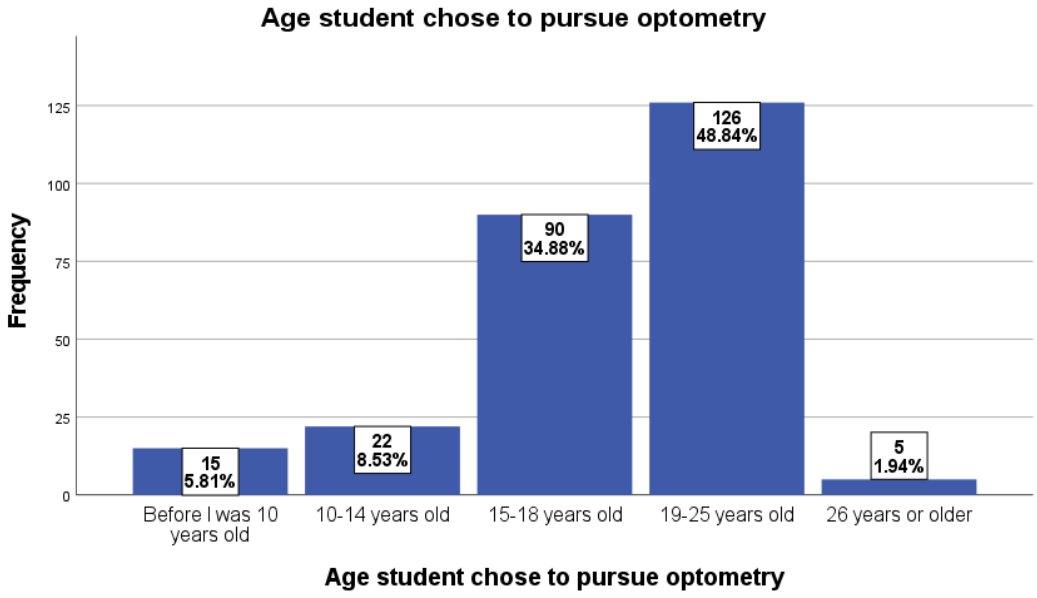

Figure 8-28 The age at which students chose to pursue optometry as a career.

Optometrists' Most Important Role:

Missing: 11 respondents

Table 8-50 A summary of what first-year optometry students felt was the most important role of an optometrist. On a scale of 1 to 5, 1 was the most important and 5 was the least important.

	1 (Most) Count	2 Count	3 Count	4 Count	5 (Least) Count	Total Count
Determining a glasses prescription	19	56	45	71	41	232
Supplying glasses	5	6	10	16	57	94
Checking the health of the eye	173	35	12	8	13	241
Supplying contact lenses	5	4	4	17	15	45
Educating patients on eye health	14	64	71	58	18	225
Referring patients to an ophthalmologist for treatment	4	6	25	32	58	125
Treating patients' eye diseases	21	74	80	36	17	228
Managing a team of support technicians	4	1	1	8	23	37
Other:	2	1	0	0	0	3

Table 8-51 The weighted sum of what first-year optometry students felt was the most important role of an optometrist. The larger the sum, the more important students felt it was. The top five most important roles are highlighted in yellow.

Rank		Sum
1	Checking the health of the eye	1070.00
2	Treating patients' eye disease	730.00
3	Educating Patients on Eye Health	673.00
4	Determining glasses Rx	637.00
5	Referring to Ophthalmologist	241.00
6	Supplying glasses	168.00
7	Supplying Contact Lenses	102.00
8	Managing team of support technicians	66.00
9	Other	14.00

**"Other" options include: Helping them get improve quality of life through better vision (1)

Areas of Study:

Missing: 13 respondents

Table 8-52 The number and percentage of students interested in each area of study. Students selected all areas of study that interested them.

		Count	Column Valid N %	Column Total N %
Areas of Study	Biology	208	84.6%	79.7%
	Health Studies/ Anatomy and Physiology	153	62.2%	58.6%
	Chemistry	89	36.2%	34.1%
	Leadership	84	34.1%	32.2%
	Math	83	33.7%	31.8%
	Physics	71	28.9%	27.2%
	Business	64	26.0%	24.5%
	Art	53	21.5%	20.3%
	Foreign Languages	51	20.7%	19.5%
	Trades (eg. ophthalmic lab technician)	42	17.1%	16.1%
	Hospitality Services	36	14.6%	13.8%
	English	30	12.2%	11.5%
	Law	26	10.6%	10.0%
	Computer Science	24	9.8%	9.2%
	Other:	4	1.6%	1.5%

** “Other” options include: Neuroscience (2), Psychology, Français

Top 5 Reasons for Choosing Optometry:

Missing: 23 respondents

Table 8-53 A summary of the top five reasons optometry students chose optometry as a career. On a scale of 1 to 5, 1 was the most important and 5 was the least important.

	1 (Most) n	2 n	3 n	4 n	5 (Least) n	Total n
Job availability and job security	13	17	22	20	14	86
Interest in healthcare	44	35	25	14	19	137
Interest in eyes and Vision	36	37	21	21	17	132
Interest in optics	2	2	2	3	5	14
Desire to help people	61	46	35	26	7	175
The need to challenge oneself	1	5	6	5	4	21
I have always been good at academics	0	2	2	6	2	12
Good work-life balance	28	35	44	41	25	173
Job autonomy/ opportunity to own a business	1	9	9	12	18	49
Pay and/or benefits	5	10	15	25	33	88
Inherit/ work in family business	2	3	2	0	2	9
Family expectation/ pressure	1	0	0	4	3	8
Reputation/ prestige	1	0	0	4	4	9
Enjoy working with people	6	7	14	13	18	58
Experience as a child/ adolescent with optometry	10	8	11	11	9	49
Did not get into first-choice program	0	0	0	0	0	0
Outreach opportunities	1	2	4	1	3	11
Community involvement	1	0	3	3	3	10
Opportunities to collaborate with other professionals	0	1	0	1	2	4
Having the title of " Doctor"	2	1	2	2	8	15
A mentor suggested it	0	4	3	3	7	17
Inspired by own optometrist/ pleasant experiences with an optometrist	13	7	11	10	12	53
"Clean profession"	6	4	2	8	15	35
No particular reason for choosing this career	0	0	0	0	1	1
Other:	0	0	0	0	1	1

Table 8-54 The weighted sum of the top five reasons students chose optometry as a career. The larger the sum, the more important students felt it was. The top five reasons are highlighted in yellow.

Rank		Sum
1	Desire to help people	653.00
2	Good work-life balance	519.00
3	Interest in healthcare	482.00
4	Interest in eyes and vision	450.00
5	Job availability and job security	253.00
6	Pay and/or benefits	193.00
7	Inspired by own optometrist	158.00
8	Experience with optometry/eyecare as a child	146.00
9	Enjoy working with people	144.00
10	Job autonomy/ opportunity to own your own business	110.00
11	"Clean Profession"	83.00
12	The need to challenge oneself	57.00
13	A mentor suggested it	38.00
14	Interest in optics	35.00
15	Having the title of "Doctor"	32.00
16	Inherit/ work in family business	30.00
17	Outreach opportunities	30.00
18	I have always been good at academics	28.00
19	Community involvement	23.00
20	Reputation/ prestige	17.00
21	Family expectation/ pressure	16.00
22	Professional Collaboration	8.00
24	No particular reason	1.00
25	Other	1.00
23	Did not get into first-choice program	.

Table 8-55 The weighted sum of the top five reasons Optometry students chose optometry as a career, separated by the country of study. The larger the sum, the more important students felt it was. The top five reasons are highlighted in yellow.

	Country	
	Canada	The United States of America
	Sum	Sum
Desire to help people	164.00	489.00
Interest in healthcare	147.00	335.00
Good work-life balance	129.00	390.00
Interest in eyes and vision	86.00	364.00
Job availability and job security	48.00	205.00
Pay and/or benefits	34.00	159.00
Experience with optometry/eyecare as a child	34.00	112.00
Enjoy working with people	32.00	112.00
Job autonomy/ opportunity to own your own business	29.00	81.00
"Clean Profession"	24.00	59.00
Inspired by own optometrist	18.00	140.00
The need to challenge oneself	18.00	39.00
Interest in optics	13.00	22.00
I have always been good at academics	13.00	15.00
Outreach opportunities	7.00	23.00
Inherit/ work in family business	5.00	25.00
Family expectation/ pressure	5.00	11.00
Reputation/ prestige	4.00	13.00
Professional Collaboration	4.00	4.00
Community involvement	3.00	20.00
A mentor suggested it	2.00	36.00
Having the title of "Doctor"	2.00	30.00
No particular reason	1.00	.
Other	.	1.00
Did not get into first-choice program	.	.

Number of Applications:

Missing: 23 respondents

Table 8-56 The number of applications each student submitted to Optometry programs.

Number of applications each student submitted to OD school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	64	24.5	27.1	27.1
	2	30	11.5	12.7	39.8
	3	46	17.6	19.5	59.3
	4	42	16.1	17.8	77.1
	5+	54	20.7	22.9	100.0
	Total	236	90.4	100.0	
Missing	System	25	9.6		
Total		261	100.0		

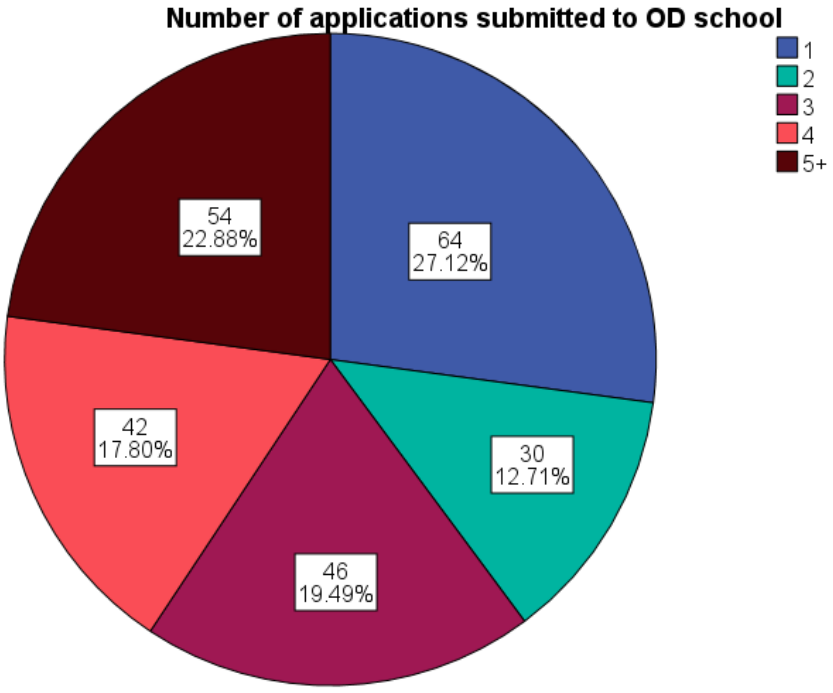

Figure 8-29The number of applications each student submitted to Optometry programs.

Table 8-57 The number of applications each student submitted to Optometry programs, separated but country of study.

		Country			
		Canada		The United States of America	
		Count	Column Valid N %	Count	Column Valid N %
Number of applications	1	44	78.6%	20	11.1%
	2	3	5.4%	27	15.0%
	3	4	7.1%	42	23.3%
	4	5	8.9%	37	20.6%
	5+	0	0.0%	54	30.0%

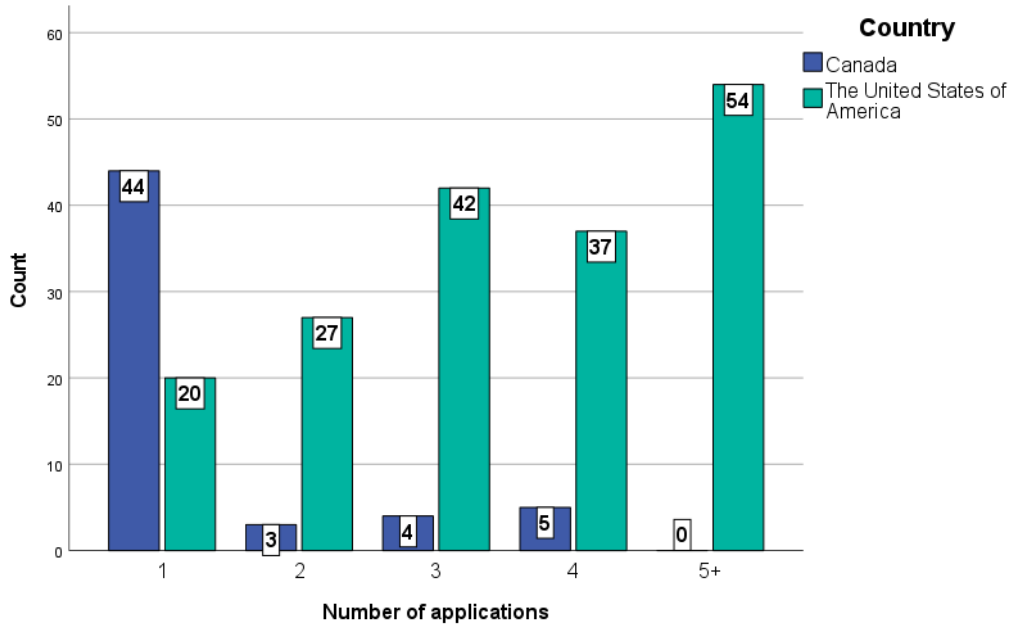

Figure 8-30 The number of applications each student submitted to Optometry programs, separated by country of study.

Table 8-58 Chi-square testing shows an association in the number of applications students submitted to Optometry programs and the country in which they study in.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	100.589[a]	4	<.001
Likelihood Ratio	101.778	4	<.001
Linear-by-Linear Association	71.573	1	<.001
N of Valid Cases	236		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.12.

Number Offers of Admission:

Missing: 23 respondents

Table 8-59 The number of offers of admission optometry students received.

Number of offers of admission

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	97	37.2	41.1	41.1
	2	70	26.8	29.7	70.8
	3	38	14.6	16.1	86.9
	4	13	5.0	5.5	92.4
	5+	18	6.9	7.6	100.0
	Total	236	90.4	100.0	
Missing	System	25	9.6		
Total		261	100.0		

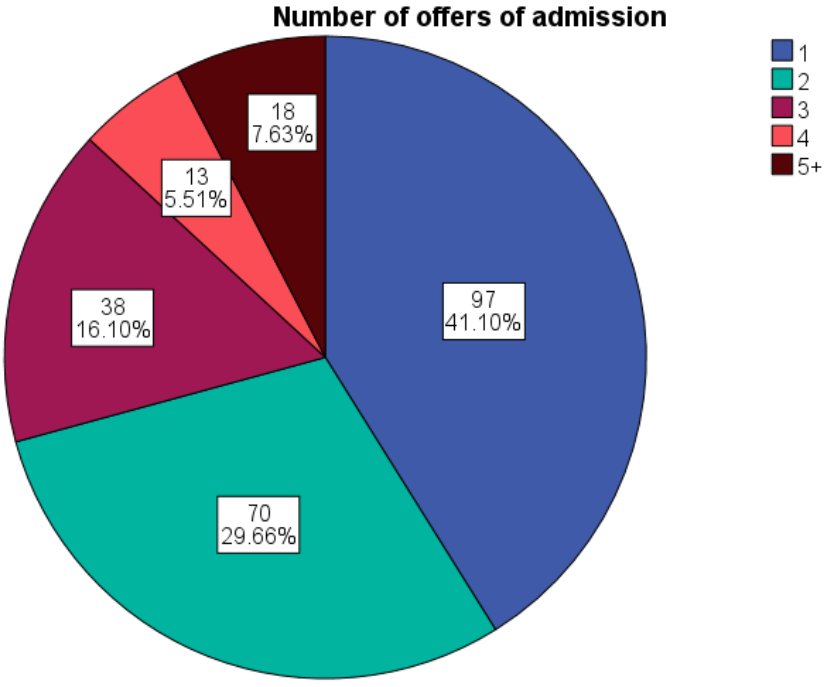

Figure 8-31The number of offers of admission optometry students received.

Table 8-60 The number of offers of admission optometry students received, separated by country of study.

		Country			
		Canada		The United States of America	
		Count	Column Valid N %	Count	Column Valid N %
Number of offers of admission	1	44	78.6%	53	29.4%
	2	6	10.7%	64	35.6%
	3	3	5.4%	35	19.4%
	4	3	5.4%	10	5.6%
	5+	0	0.0%	18	10.0%

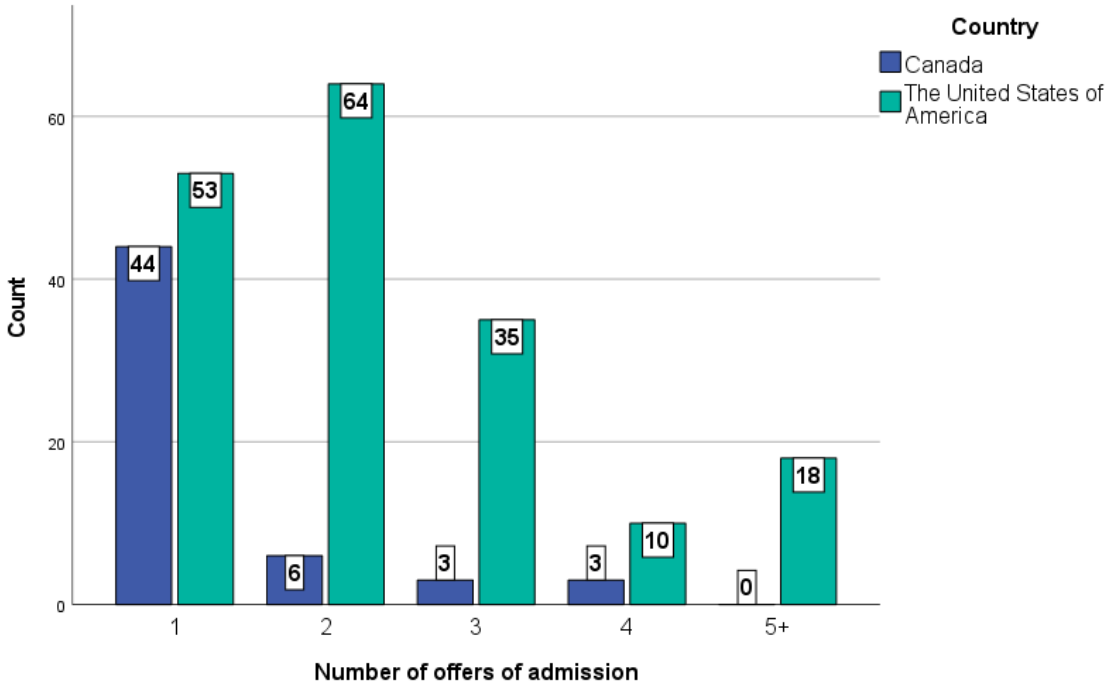

Figure 8-32 The number of offers of admission optometry students received, separated by country of study.

**Assumptions not met for chi-square testing

First-choice School:

Missing: 23 Respondents

Table 8-61 The number and percentage of students who agreed or disagreed that they were enrolled at their first-choice institution.

Enrolled in 1st choice program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	32	12.3	13.6	13.6
	Yes	204	78.2	86.4	100.0
	Total	236	90.4	100.0	
Missing	System	25	9.6		
Total		261	100.0		

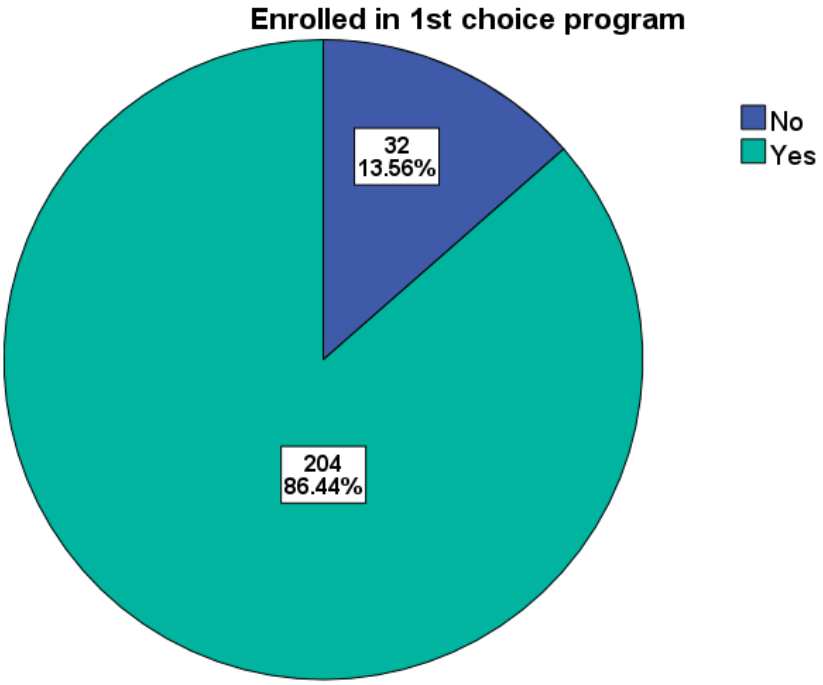

Figure 8-33 The percentage of students who agreed or disagreed that they were enrolled at their first-choice institution.

Table 8-62 A crosstabulation of students who agreed or disagreed that they were enrolled at their first-choice institution, separated by country.

Enrolled in 1st choice program * Country Crosstabulation

			Country		
			Canada	The United States of America	Total
Enrolled in 1st choice program	No	Count	2	30	32
		% within Enrolled in 1st choice program	6.3%	93.8%	100.0%
		% within country	3.6%	16.7%	13.6%
		% of Total	0.8%	12.7%	13.6%
	Yes	Count	54	150	204
		% within Enrolled in 1st choice program	26.5%	73.5%	100.0%
		% within country	96.4%	83.3%	86.4%
		% of Total	22.9%	63.6%	86.4%
Total		Count	56	180	236
		% within Enrolled in 1st choice program	23.7%	76.3%	100.0%
		% within country	100.0%	100.0%	100.0%
		% of Total	23.7%	76.3%	100.0%

Table 8-63 Chi-square testing shows an association of students enrolled at their first-choice school and the country in which they study.

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.249[a]	1	.012		
Continuity Correction[b]	5.182	1	.023		
Likelihood Ratio	7.870	1	.005		
Fisher's Exact Test				.013	.007
Linear-by-Linear Association	6.223	1	.013		
N of Valid Cases	236				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.59.

b. Computed only for a 2x2 table

Top 5 Reasons for Choosing Training Institution:

Missing: 23 Respondents

Table 8-64 The total count of all students top five reasons for choosing their training institution.

	1 (Most) Count	2 Count	3 Count	4 Count	5 (Least) Count	Total Count
University reputation, regardless of location	20	19	10	20	21	90
Program reputation, regardless of location	54	30	26	33	15	158
Location was close to home	42	38	33	12	12	137
Location was in an area of Canada/USA in which I wanted to live	8	13	19	18	8	66
Program cost	26	30	23	18	15	112
Influence of a friend or family member	3	4	11	24	22	64
Influence of my optometrist	0	20	14	16	14	64
Influence of media or promotional material	1	1	3	5	5	15
First choice was not available	10	3	2	3	4	22
The optometry program is the only one available in my country taught in a language I am fluent in	19	10	6	3	4	42
Scholarships and grants	4	11	16	11	7	49
"Gut Feeling"	15	9	11	16	36	87
Welcome day/ Interview day	16	22	26	22	25	111
Program curriculum	12	18	25	17	24	96
Other:	4	2	2	5	3	16

** “Other” options include: The atmosphere of the school is incredible, Only got accepted into this one college, KYCO Advantage program providing KMK board prep at no additional cost, amongst other things like iPads, equipment, and scrubs (3), The faculty were so genuine, Small school, small town, Cost, Easier – don’t have to get visa or American bank account. Etc, Class size, Diversity (student, patient, and pathology), Clinical reputation, research reputation, Advanced equipment, Only university offering this program in Quebec. (2)

Table 8-65 Table of the sum of the weighted responses regarding reasons why students chose their training institution. The top five reasons chosen are highlighted.

	Sum
Program reputation, regardless of location	549.00
Location was close to home	497.00
Program cost	370.00
Welcome day/ Interview day	315.00
University reputation, regardless of location	267.00
Program curriculum	265.00
"Gut feeling"	212.00
Location in area of Canada/USA I want to live	193.00
Influence of my optometrist	168.00
The optometry program is the only one available in my language	163.00
Scholarships or Grants	141.00
Influences of a friend or family member	134.00
First choice not available	54.00
Other:	47.00
Influence of media or promotional material	33.00

Table 8-66 Table of the sum of the weighted responses regarding reasons why the students chose their training institution. The top five reasons chosen by each country are highlighted.

	Country	
	Canada Sum	The United States of America Sum
The optometry program is the only one available in my language	163.00	.
Location was close to home	150.00	347.00
Program cost	143.00	227.00
Program reputation, regardless of location	77.00	472.00
Location in area of Canada/USA I want to live	68.00	125.00
University reputation, regardless of location	48.00	219.00
Influences of a friend or family member	36.00	98.00
Influence of my optometrist	32.00	136.00
Welcome day/ Interview day	18.00	297.00
Other:	13.00	34.00
"Gut feeling"	10.00	202.00
Scholarships or Grants	9.00	132.00
Program curriculum	8.00	257.00
Influence of media or promotional material	5.00	28.00
First choice not available	2.00	52.00

Student Debt:

Missing: 23 Respondents

Table 8-67 Students expected debt from their optometry program, separated by the country in which they studied.

		Country			
		Canada		The United States of America	
		Count	Column Valid N %	Count	Column Valid N %
Optometry degree student debt	No debt	11	19.6%	17	9.4%
	US $1- $25,000 (CAD $1.33-$33,189)	9	16.1%	1	0.6%
	US $25,000-$50,000 (CAD $33,189-$66,378)	6	10.7%	3	1.7%
	US $50,000-$75,000 (CAD $66,378-$99,566)	15	26.8%	5	2.8%
	US $75,000-$100,000 (CAD $99,566-$132,755)	8	14.3%	9	5.0%
	US $100,000-$125,000 (CAD $132,755-$165,944)	2	3.6%	17	9.4%
	US $125,000-$150,000 (CAD $165,944-$199,133)	3	5.4%	21	11.7%
	US $150,000-$175,000 (CAD $199,133-$232,321)	1	1.8%	31	17.2%
	US $175,000-$200,000 (CAD $232,321-$265,510)	0	0.0%	25	13.9%
	US $200,000+ (CAD $265,510+)	1	1.8%	51	28.3%

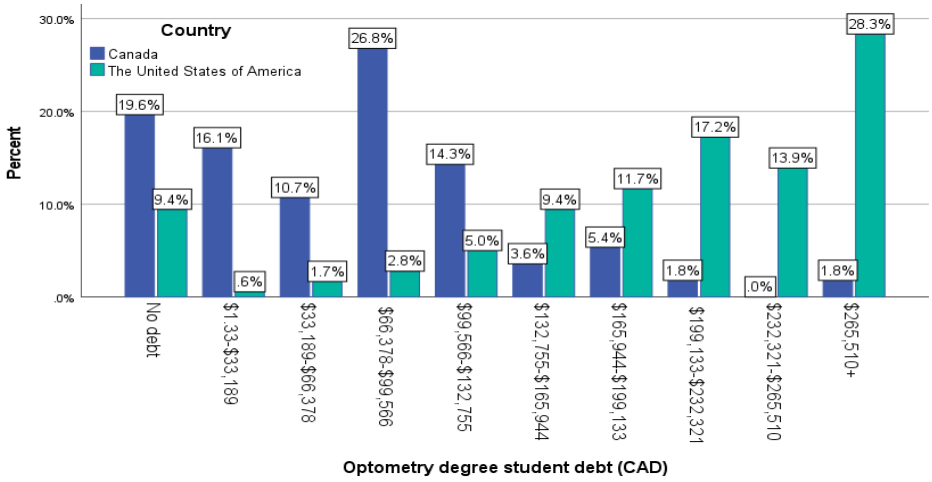

Figure 8-34Students expected debt from their optometry program, separated by the country in which they studied.

Exposure to Eye Conditions and its influence:

Missing: 25 Respondents

Table 8-68 The number and percentage of students who either had an eye condition or had a close relative or friend with an eye condition.

		Count	Column Valid N %	Column Total N %
Exposure to Eye Conditions	Yes, I do	40	16.9%	15.3%
	Yes, my parent	58	24.6%	22.2%
	Yes, a close relative	113	47.9%	43.3%
	Yes, a close friend	27	11.4%	10.3%
	No	66	28.0%	25.3%

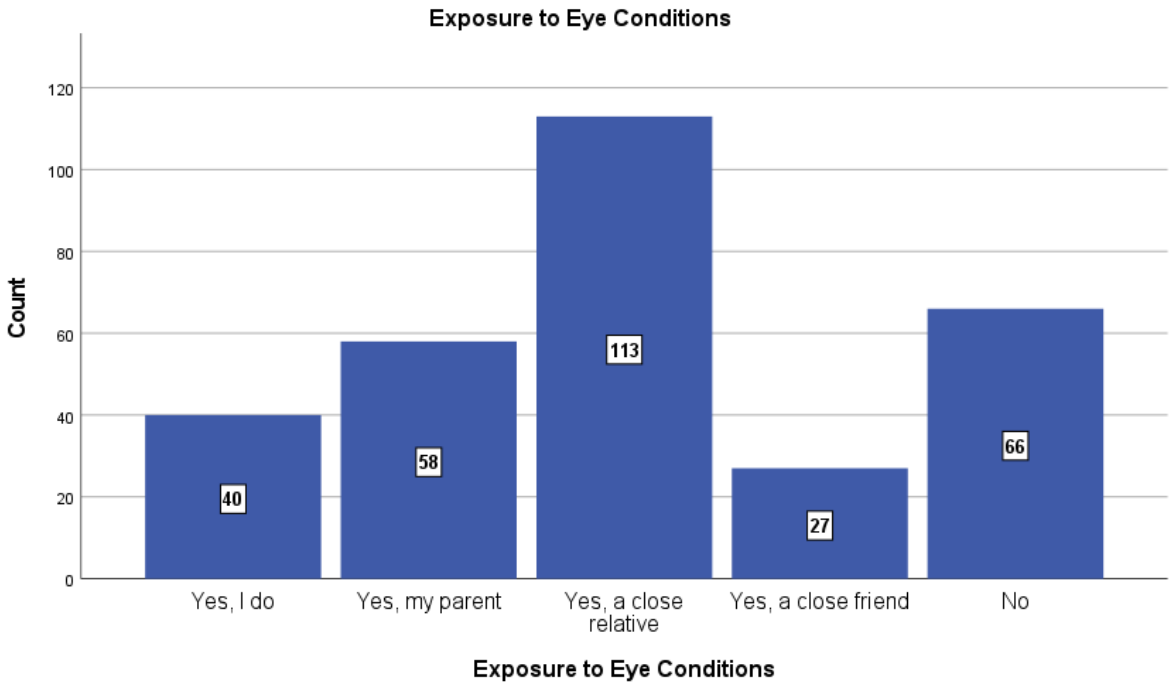

Figure 8-35 The number of students who either had an eye condition or had a close relative or friend with an eye condition.

Table 8-69 The number and percentage of student who were influenced by eye conditions.

Influence of eye condition

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	98	37.5	57.3	57.3
	Yes	73	28.0	42.7	100.0
	Total	171	65.5	100.0	
Missing	System	90	34.5		
Total		261	100.0		

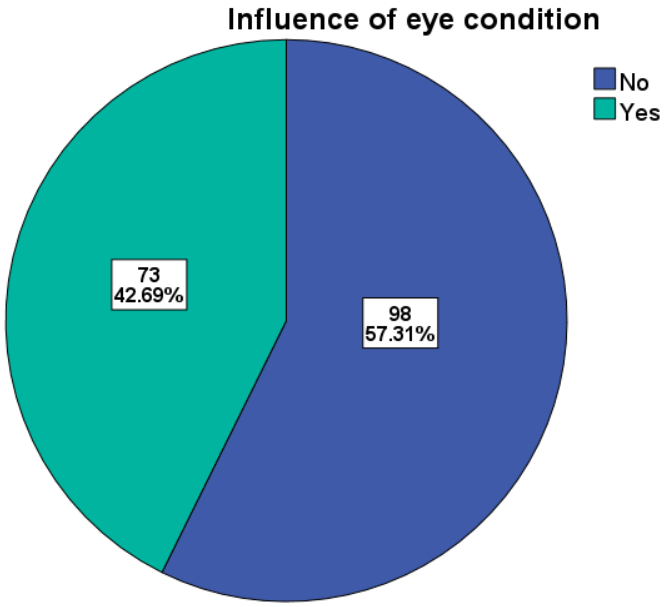

Figure 8-36 The percentage of student who were influenced by eye conditions.

Exposure to Glasses and Contact lenses and their influence:

Missing: 23 Respondents

Table 8-70 The number and percentage of students who wear glasses, contact lenses or neither.

		Count	Column Valid N %	Column Total N %
Exposure to Glasses and Contact lenses	Yes, glasses	192	81.4%	73.6%
	Yes, contact lenses	154	65.3%	59.0%
	No	42	17.8%	16.1%

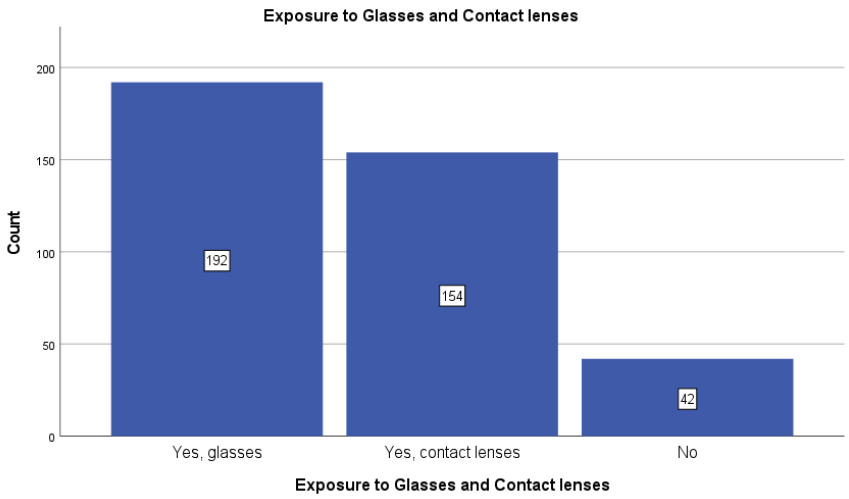

Figure 8-37 The number of students who wear glasses, contact lenses or neither.

Table 8-71 The number and percentage of students who were influenced by vision correction.

Influence of Visual Correction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	61	23.4	31.6	31.6
	Yes	132	50.6	68.4	100.0
	Total	193	73.9	100.0	
Missing	System	68	26.1		
Total		261	100.0		

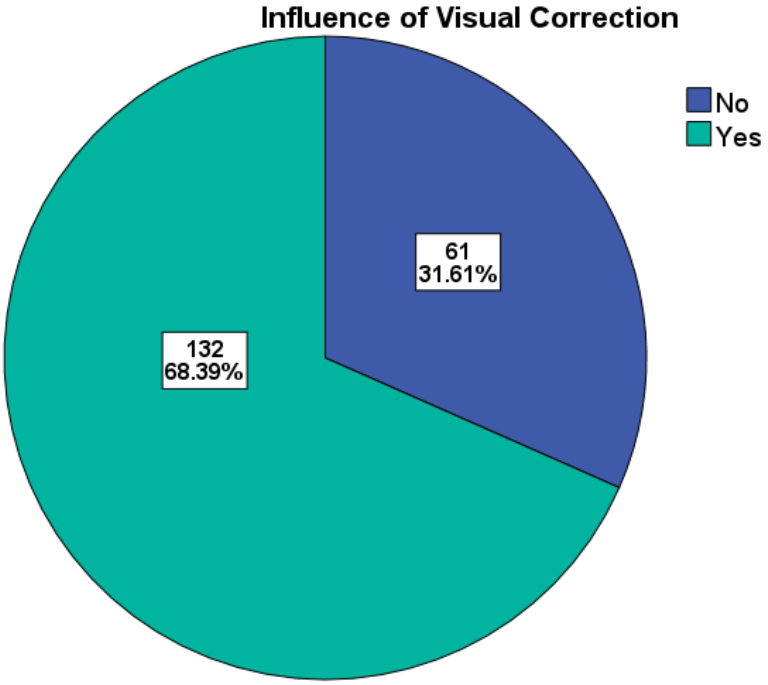

Figure 8-38 The percentage of students who were influenced by vision correction.

Exposure to an Optometrist and its influence:

Missing: 23 Respondents

Table 8-72 The number and percentage of students who knew a close relative or friend who was an optometrist or in an eye-related field of work.

		Count	Column Valid N %	Column Total N %
Exposure to an Optometrist	Yes, my parent	17	7.2%	6.5%
	Yes, a close relative	19	8.1%	7.3%
	Yes, a close friend	39	16.5%	14.9%
	No	167	70.8%	64.0%

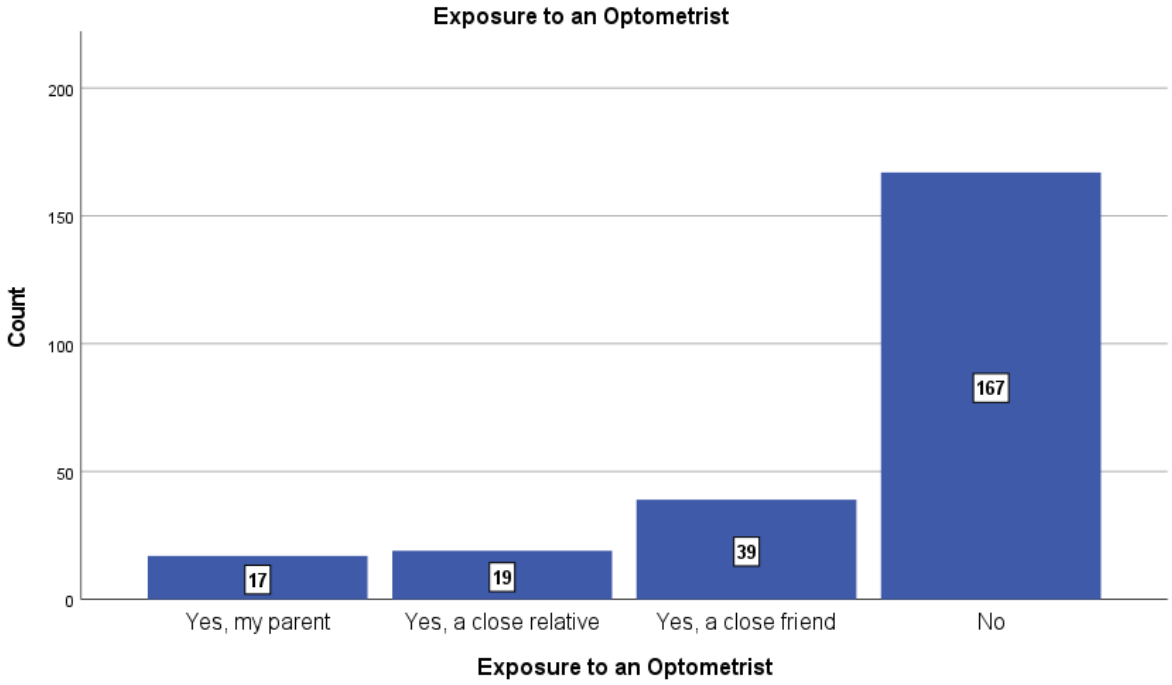

Figure 8-39 The number of students who knew a close relative or friend who was an optometrist or in an eye-related field of work.

Table 8-73 The number and percentage of students who were influenced by a close relationship with an optometrist or person in an eye-related field of work.

Influence of friend or family in the field

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	14	5.4	20.3	20.3
	Yes	55	21.1	79.7	100.0
	Total	69	26.4	100.0	
Missing	System	192	73.6		
Total		261	100.0		

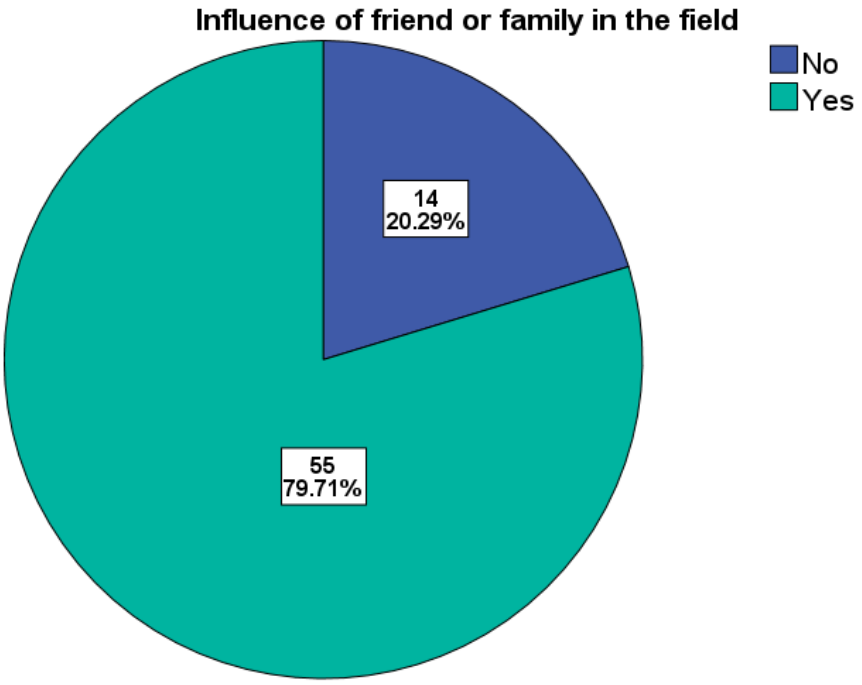

Figure 8-40 The percentage of students who were influenced by a close relationship with an optometrist or person in an eye-related field of work.

Exposure to Work Experience and its influence:

Missing: 23 respondents

Table 8-74 The number and percentage of optometry students with work experience.

		Count	Column Valid N %	Column Total N %
Exposure to Work Experience	Yes, job shadowing	178	75.4%	68.2%
	Yes, volunteer position	79	33.5%	30.3%
	Yes, I have worked in an eye care field	146	61.9%	55.9%
	No	18	7.6%	6.9%

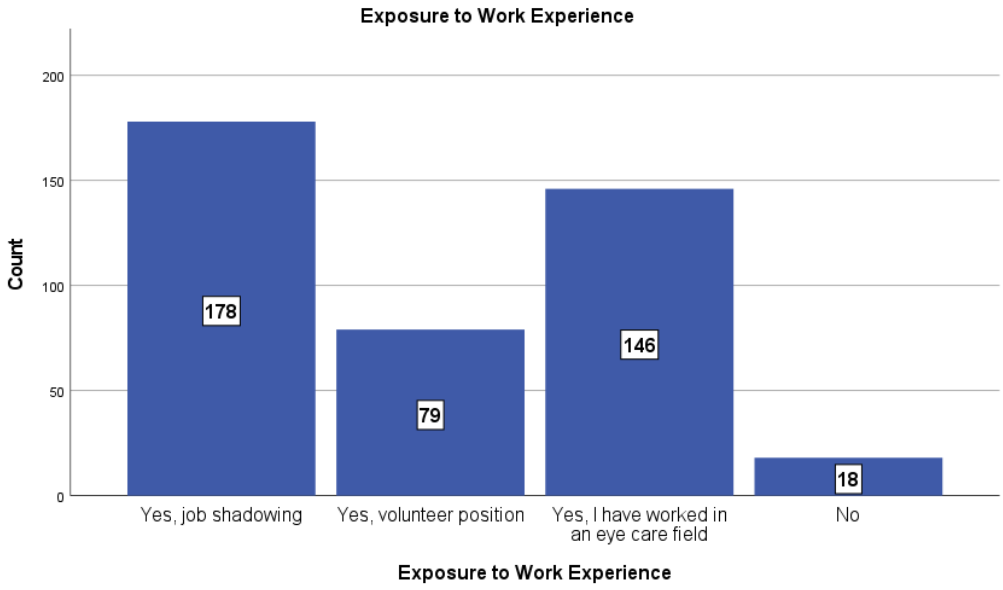

Figure 8-41 The number of optometry students with previous work experience

Table 8-75 The number and percentage of students who were influenced by their work experience.

Influence of work experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	10	3.8	4.6	4.6
	Yes	208	79.7	95.4	100.0
	Total	218	83.5	100.0	
Missing	System	43	16.5		
Total		261	100.0		

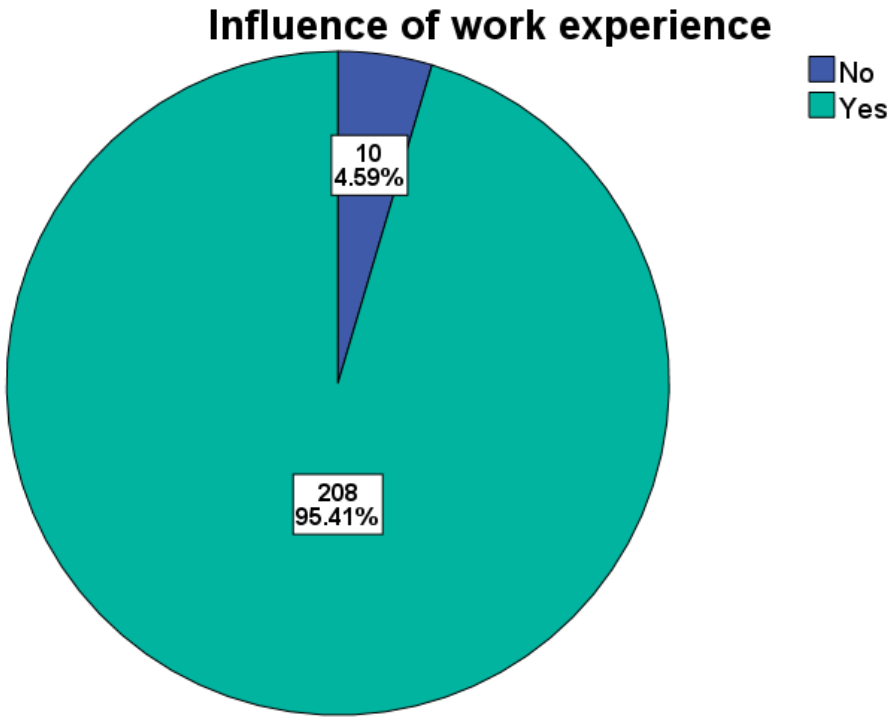

Figure 8-42 The percentage of students who were influenced by their work experience.

Exposure to Vision/Eye Research and its influence:

Missing: 23 Respondents

Table 8-76 The number and percentage of students with experience in eye or vision research

Experience in eye/ vision research

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	206	78.9	87.3	87.3
	Yes	30	11.5	12.7	100.0
	Total	236	90.4	100.0	
Missing	System	25	9.6		
Total		261	100.0		

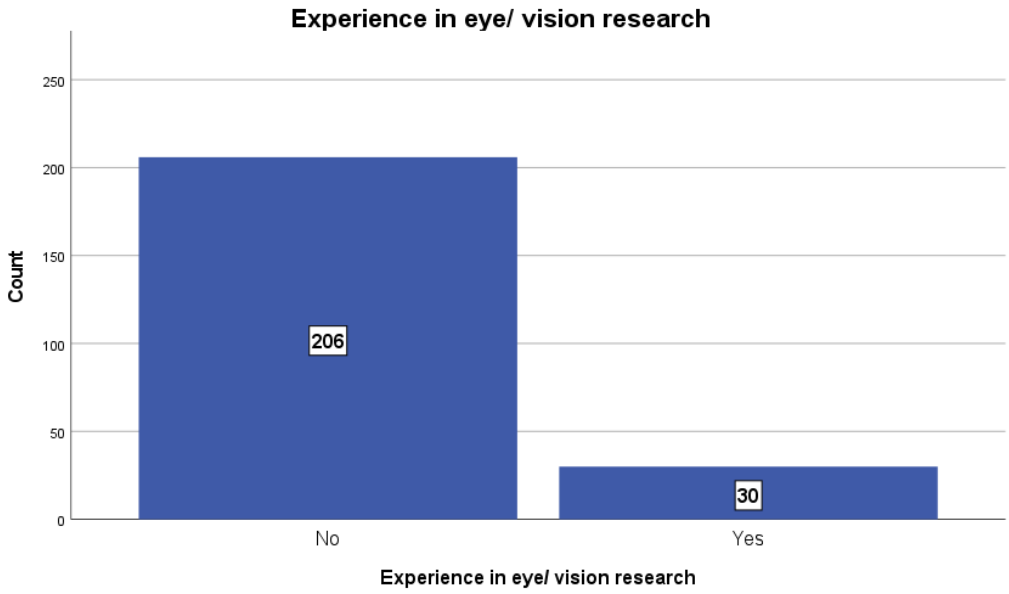

Figure 8-43 The number of students with experience in eye or vision research.

Table 8-77 The number and percentage of students who were influenced by their eye or vision research.

Influence of eye/ vision research

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	10	3.8	33.3	33.3
	Yes	20	7.7	66.7	100.0
	Total	30	11.5	100.0	
Missing	System	231	88.5		
Total		261	100.0		

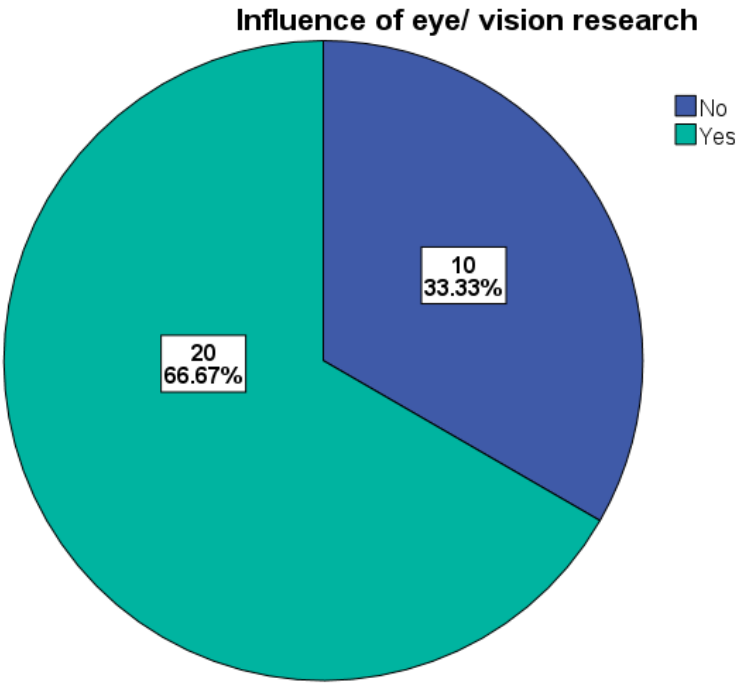

Figure 8-44 The percentage of students who were influenced by their eye or vision research.

Expected Modes of Optometry:

Missing: 23 Respondents

Table 8-78 The number and percentage of optometry students interested in each mode of practice. Students could choose as many as applied.

	Count	Column Valid N %	Column Total N %
Private practice (Solo or Partnered)	219	92.8%	83.9%
Volunteer work	86	36.4%	33.0%
Hospital Practice	73	30.9%	28.0%
Residency	72	30.5%	27.6%
Corporate/ Retail Practice	70	29.7%	26.8%
Academia	45	19.1%	17.2%
Minor eye surgical procedures	43	18.2%	16.5%
Laser surgery	43	18.2%	16.5%
Veterans' Affairs Hospital	37	15.7%	14.2%
Involvement with state, provincial or federal optometric associations	31	13.1%	11.9%
I don't know	24	10.2%	9.2%
Military/ Navy/ Air Force	19	8.1%	7.3%
Industry-based	18	7.6%	6.9%
Home Visits	7	3.0%	2.7%
Other:	4	1.7%	1.5%
Locum work	3	1.3%	1.1%

** “Other” options included: Pediatrics & Low vision, Prisons, Sport shooting, Optometrist for a college athletics or NFL (professional team)

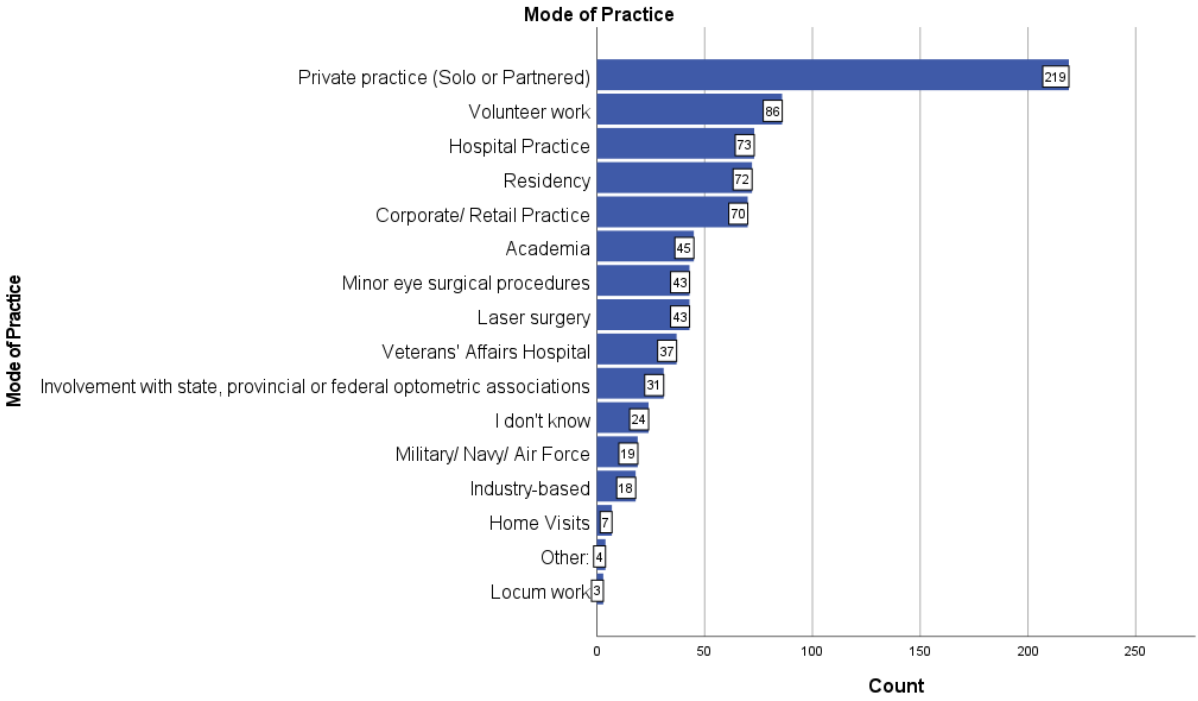

Figure 8-45 The number of optometry students interested in each mode of practice. Students could choose as many as applied.

Table 8-79 The number and percentage of optometry students interested in each mode of practice, separated by country of study. Students could choose as many as applied.

		Country			
		Canada		The United States of America	
		Count	Column Valid N %	Count	Column Valid N %
Mode of Practice	Private practice (Solo or Partnered)	53	94.6%	166	92.2%
	Corporate/ Retail Practice	14	25.0%	56	31.1%
	Hospital Practice	18	32.1%	55	30.6%
	Veterans' Affairs Hospital	1	1.8%	36	20.0%
	Military/ Navy/ Air Force	1	1.8%	18	10.0%
	Minor eye surgical procedures	11	19.6%	32	17.8%
	Academia	9	16.1%	36	20.0%
	Residency	15	26.8%	57	31.7%
	Industry-based	3	5.4%	15	8.3%
	Locum work	1	1.8%	2	1.1%
	Home Visits	2	3.6%	5	2.8%
	Volunteer work	22	39.3%	64	35.6%
	Laser surgery	12	21.4%	31	17.2%
	Involvement with state, provincial or federal optometric associations	7	12.5%	24	13.3%
	I don't know	3	5.4%	21	11.7%
	Other:	0	0.0%	4	2.2%

Expected Number of Practices to Work at initially:

Table 8-80 The number of practices optometry students expected to work in at the beginning of their career.

Expected # of practices to work in at beginning of career

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	82	31.4	34.7	34.7
	2	91	34.9	38.6	73.3
	3	12	4.6	5.1	78.4
	4+	6	2.3	2.5	80.9
	I don't know	45	17.2	19.1	100.0
	Total	236	90.4	100.0	
Missing	System	25	9.6		
Total		261	100.0		

Table 8-81 The number of practices optometry students expected to work in at the beginning of their career, separated by county of study.

		Country			
		Canada		The United States of America	
		Count	Column Valid N %	Count	Column Valid N %
Expected # of practices to work in at beginning of career	1	11	19.6%	71	39.4%
	2	32	57.1%	59	32.8%
	3	7	12.5%	5	2.8%
	4+	3	5.4%	3	1.7%
	I don't know	3	5.4%	42	23.3%

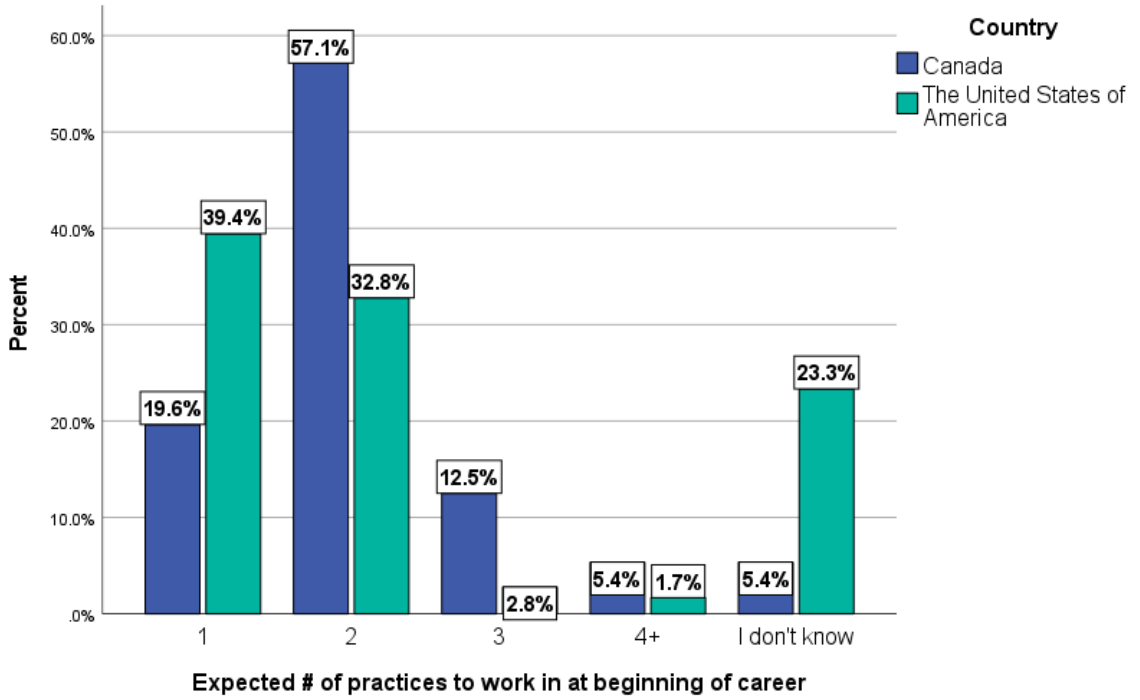

Figure 8-46 The number of practices optometry students expected to work in at the beginning of their career, separated by country of study.

Expected Hours:

Table 8-82 The number of hours optometry students expected to work per week within their first year of practice.

Expected Number of Hours per Week

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	11-20 hours	5	1.9	2.1	2.1
	21-30 hours	9	3.4	3.8	5.9
	31-40 hours	99	37.9	41.9	47.9
	41-50 hours	89	34.1	37.7	85.6
	50+ hours	21	8.0	8.9	94.5
	I don't know	13	5.0	5.5	100.0
	Total	236	90.4	100.0	
Missing	System	25	9.6		
Total		261	100.0		

Table 8-83 The number of hours optometry students expected to work per week within their first year of practice, separated by country of study.

		Country			
		Canada		The United States of America	
		Count	Column Valid N %	Count	Column Valid N %
Expected # of hours/ wk	Less than 10	0	0.0%	0	0.0%
	11-20 hours	3	5.4%	2	1.1%
	21-30 hours	6	10.7%	3	1.7%
	31-40 hours	31	55.4%	68	37.8%
	41-50 hours	12	21.4%	77	42.8%
	50+ hours	3	5.4%	18	10.0%
	I don't know	1	1.8%	12	6.7%

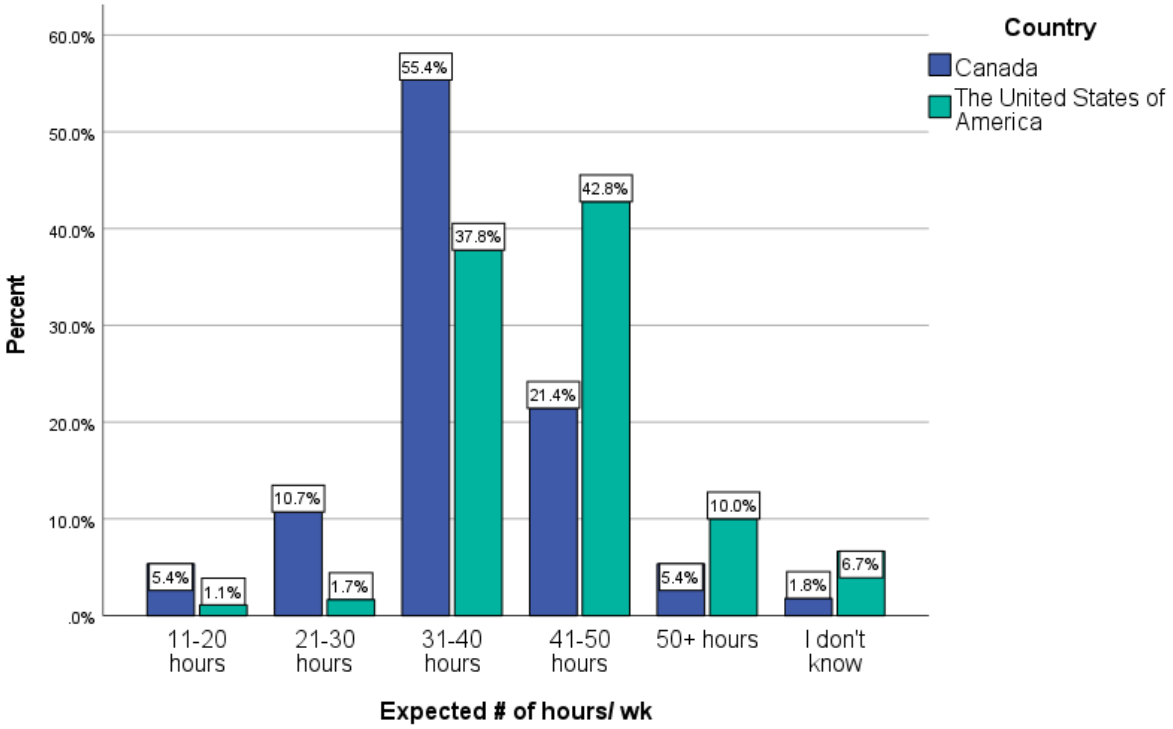

Figure 8-47 The number of hours optometry students expected to work per week within their first year of practice, separated by country of study.

Expected Gross Income (first year):

Table 8-84 Students' expected income within their first year upon graduation.

Expected gross income

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< $60,000 US (< $79,653 CA)	8	3.1	3.4	3.4
	$60,000-$80,000 US ($79,653-$106,204 CA)	37	14.2	15.7	19.1
	$80,000-$100,000 US ($106,204-$132,755 CA)	67	25.7	28.4	47.5
	$100,000-$120,000 US ($132,755- $159,306 CA)	80	30.7	33.9	81.4
	$120,000-$140,000 US ($159,306-$185,857 CA)	14	5.4	5.9	87.3
	$140,000-$160,000 US ($185,857-$212,408 CA)	3	1.1	1.3	88.6
	$160,000+ US ($212,408+ CA)	2	.8	.8	89.4
	I don't know	25	9.6	10.6	100.0
	Total	236	90.4	100.0	
Missing	System	25	9.6		
Total		261	100.0		

Table 8-85 Students' expected income within their first year upon graduation, separated by country.

		Country			
		Canada		The United States of America	
		Count	Column Valid N %	Count	Column Valid N %
Expected gross income	< $60,000 US (< $79,653 CA)	6	10.7%	2	1.1%
	$60,000-$80,000 US ($79,653-$106,204 CA)	21	37.5%	16	8.9%
	$80,000-$100,000 US ($106,204-$132,755 CA)	15	26.8%	52	28.9%
	$100,000-$120,000 US ($132,755- $159,306 CA)	6	10.7%	74	41.1%
	$120,000-$140,000 US ($159,306-$185,857 CA)	0	0.0%	14	7.8%
	$140,000-$160,000 US ($185,857-$212,408 CA)	0	0.0%	3	1.7%
	$160,000+ US ($212,408+ CA)	1	1.8%	1	0.6%
	I don't know	7	12.5%	18	10.0%

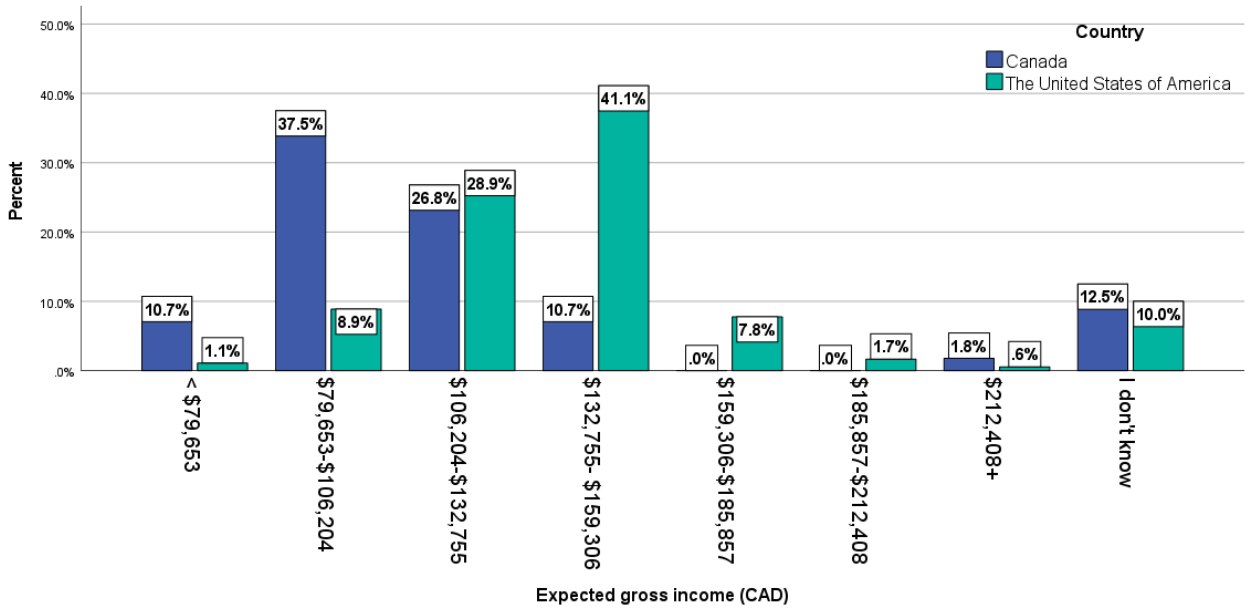

Figure 8-48 Students' expected income within their first year upon graduation, separated by country.

Reasons for hours to change:

Missing: 26 Respondents

Table 8-86 Students were asked if certain circumstances would increase or decrease their expected work hours within their first 10 years.

	Not Applicable Count	Hours expected to increase Count	Hours expected to decrease Count
Having children/ Spending time with children	25	15	182
Family responsibilities	25	24	175
Maternity leave	75	13	139
Taking time for volunteer work	33	59	128
Health issues or sickness	65	20	127
Time devoted to interests or hobbies	77	34	107
Pursuing further studies	100	33	77
Developing a 2nd career outside of optometry	120	27	67
Early retirement	88	58	64
Role in professional bodies	96	63	50
Paternity leave	161	7	41
Change in role within optometry profession	67	120	25
Changing case load/ patient base	31	170	12
Ideal Salary	20	191	10
Paying off debts	22	190	10
Own my own business	30	183	9
Other:	68	2	1

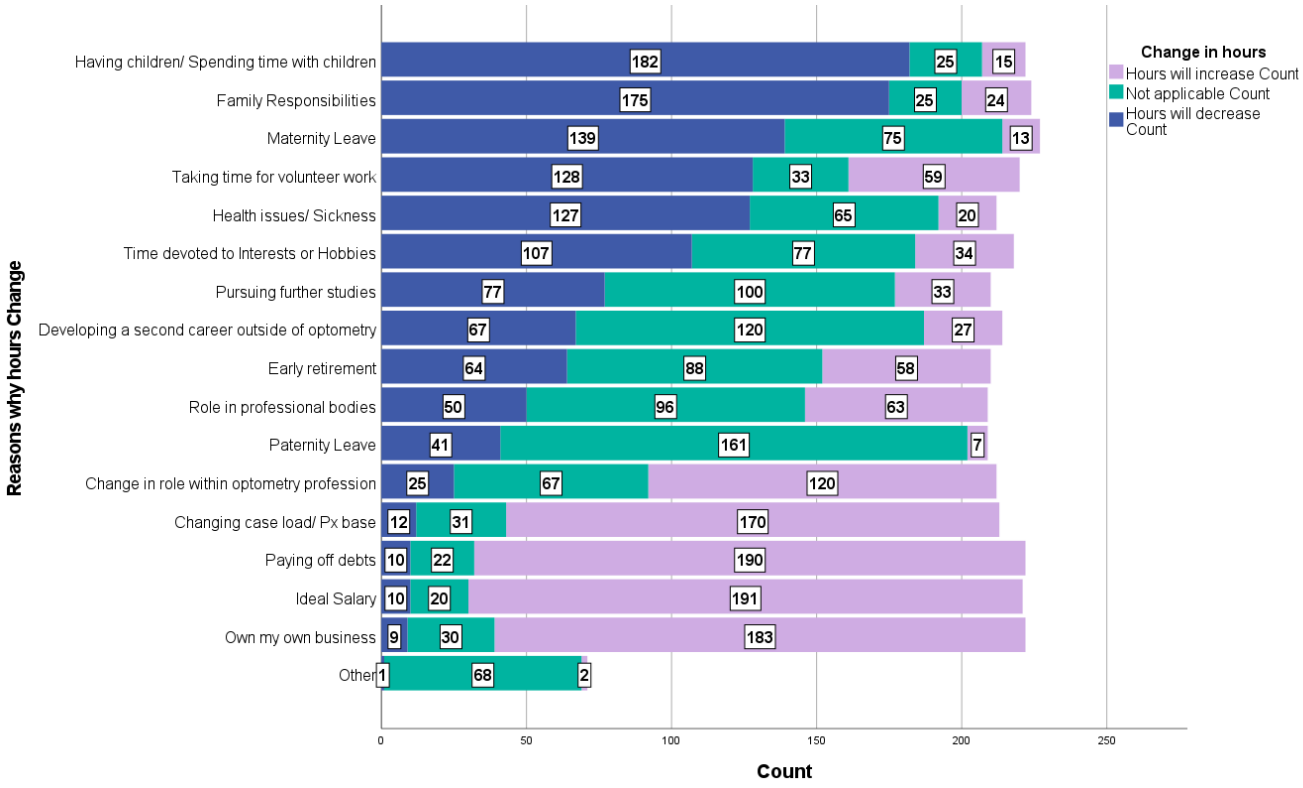

Figure 8-49 Students were asked if certain circumstances would increase or decrease their expected work hours within their first 10 years. Family circumstances tended to decrease their hours and business and financial circumstances tended to increase their hours.

Intent to own a Practice:

Missing: 27 respondents

Table 8-87 The number and percentage of students who intend to own or co-own a practice/ practices.

Intention to own a practice/ practices

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	13	5.0	5.6	5.6
	Yes	66	25.3	28.4	34.1
	I would like to co-own a practice	106	40.6	45.7	79.7
	I don't know	47	18.0	20.3	100.0
	Total	232	88.9	100.0	
Missing	System	29	11.1		
Total		261	100.0		

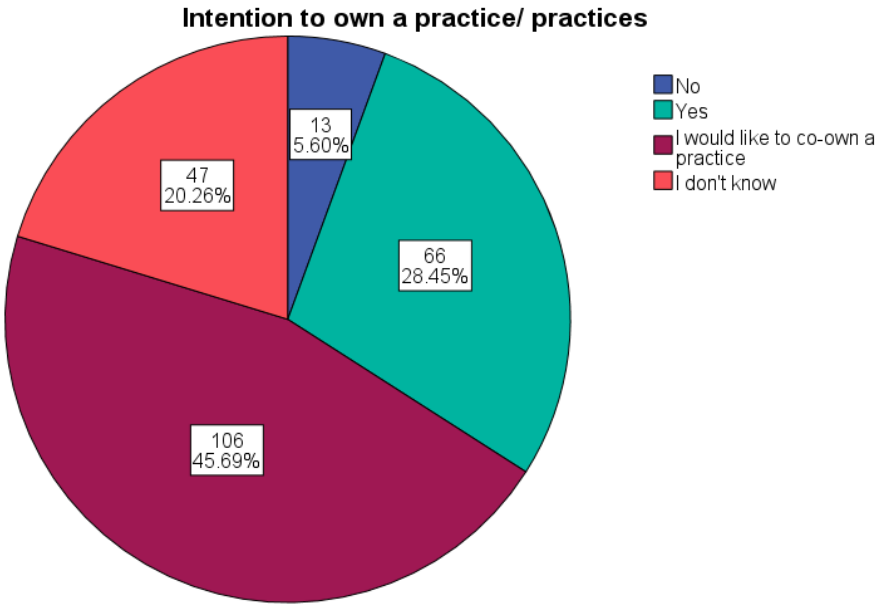

Figure 8-50 The percentage of students who intend to own or co-own a practice/ practices.

Table 8-88 The number of students who intend to own or co-own a practice/ practices, separated by country.

Intention to own a practice/ practices * country Crosstabulation

Count

		Country		
		Canada	The United States of America	Total
Intention to own a practice/ practices	No	3	10	13
	Yes	14	52	66
	I would like to co-own a practice	27	79	106
	I don't know	10	37	47
Total		54	178	232

** Assumptions not met for chi-square testing.

Buy an existing practice or start a practice from scratch:

Table 8-89 The number and percentage of students who intend to own a practice by buying an existing practice or starting one from scratch.

Buy existing or start from scratch

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Buy an existing practice	138	52.9	81.2	81.2
	Start a practice from scratch	32	12.3	18.8	100.0
	Total	170	65.1	100.0	
Missing	System	91	34.9		
Total		261	100.0		

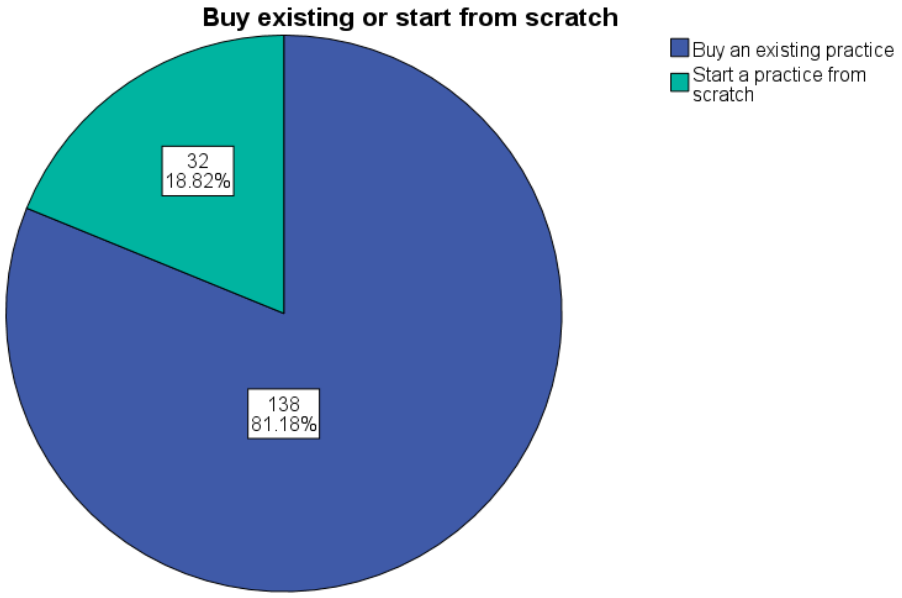

Figure 8-51 The percentage of students who intend to own a practice by buying an existing practice or starting one from scratch.

Expects years until Practice Ownership:

Statistics

Expected years until purchase

N	Valid	0
	Missing	261

** Question did not compute: no responses.

Intent to own an Optical:

Statistics

Intention to own an Optical Dispensary

N	Valid	0
	Missing	261

** Question did not compute: no responses.

Expected location of Work on Graduation:

Table 8-90 Locations in which optometry students intend to practice.

Expected location of work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Alberta	4	1.5	1.8	1.8
	British Columbia	4	1.5	1.8	3.6
	Manitoba	3	1.1	1.3	4.9
	New Brunswick	1	.4	.4	5.4
	Nova Scotia	1	.4	.4	5.8
	Nunavut	1	.4	.4	6.3
	Ontario	25	9.6	11.2	17.5
	Quebec	14	5.4	6.3	23.8
	Alabama	1	.4	.4	24.2
	Alaska	1	.4	.4	24.7
	Arizona	1	.4	.4	25.1
	Arkansas	2	.8	.9	26.0
	California	31	11.9	13.9	39.9
	Colorado	2	.8	.9	40.8
	Florida	1	.4	.4	41.3
	Georgia	1	.4	.4	41.7
	Illinois	2	.8	.9	42.6
	Indiana	3	1.1	1.3	43.9
	Kansas	2	.8	.9	44.8
	Kentucky	13	5.0	5.8	50.7
	Louisiana	6	2.3	2.7	53.4
	Maryland	1	.4	.4	53.8
	Michigan	19	7.3	8.5	62.3
	Minnesota	4	1.5	1.8	64.1
	Mississippi	2	.8	.9	65.0
	Missouri	9	3.4	4.0	69.1
	Nebraska	2	.8	.9	70.0
	New Mexico	1	.4	.4	70.4

	New York	4	1.5	1.8	72.2
	North Carolina	3	1.1	1.3	73.5
	Ohio	15	5.7	6.7	80.3
	Oregon	2	.8	.9	81.2
	Pennsylvania	1	.4	.4	81.6
	Tennessee	8	3.1	3.6	85.2
	Texas	14	5.4	6.3	91.5
	Utah	4	1.5	1.8	93.3
	Virginia	5	1.9	2.2	95.5
	Washington	2	.8	.9	96.4
	West Virginia	2	.8	.9	97.3
	Wisconsin	2	.8	.9	98.2
	Wyoming	1	.4	.4	98.7
	Other:	3	1.1	1.3	100.0
	Total	223	85.4	100.0	
Missing	System	38	14.6		
Total		261	100.0		

** “Other” options include: open to opportunities, I don’t know, any

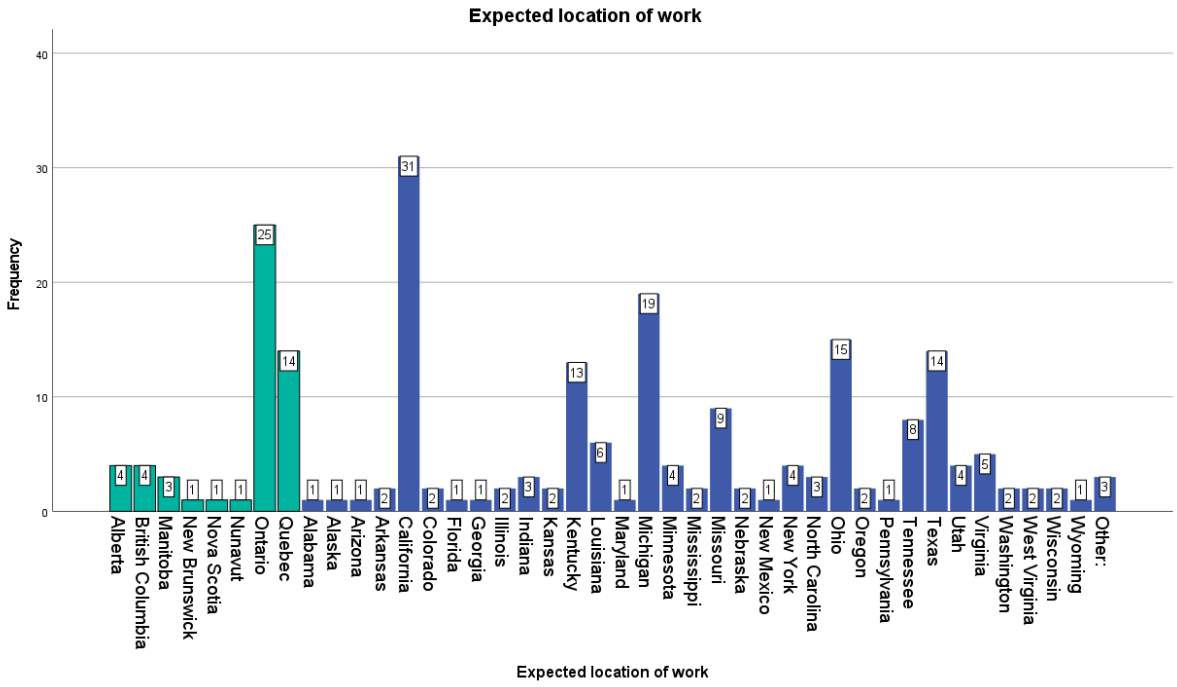

Figure 8-52 Locations in which optometry students intend to practice. Canadian provinces are represented in green and American states are represented in blue.

Expected community size:

Table 8-91 The community size in which optometry students intend to practice.

Expected Community Size

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 1,000 people	1	.4	.4	.4
	1,000-29,000 people	47	18.0	20.3	20.7
	30,000-99,999 people	54	20.7	23.3	44.0
	100,000-299,999 people	27	10.3	11.6	55.6
	300,000+ people	32	12.3	13.8	69.4
	I don't know	71	27.2	30.6	100.0
	Total	232	88.9	100.0	
Missing	System	29	11.1		
Total		261	100.0		

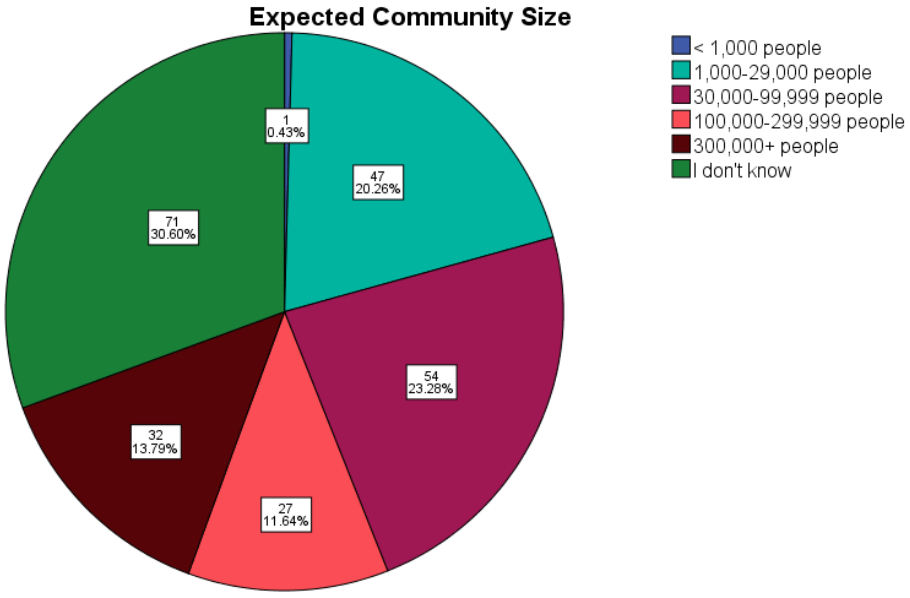

Figure 8-53 The community size in which optometry students intend to practice.

Reasons for Choosing Location:

Table 8-92 Optometry students' reasons for choosing a practice location. The top three reasons are highlighted.

	Count	Column Valid N %	Column Total N %
Proximity to family	191	82.3%	73.2%
Job prospects/ availability	144	62.1%	55.2%
Cost of living	118	50.9%	45.2%
Proximity to friends	101	43.5%	38.7%
Proximity to significant other	100	43.1%	38.3%
Earning potential/ benefits including optometric reimbursement	70	30.2%	26.8%
Job type matches what I am looking for	69	29.7%	26.4%
Prefer living in an urban area	65	28.0%	24.9%
Prefer living in a rural area	55	23.7%	21.1%
Demand/ filling in a void	48	20.7%	18.4%
Proximity to current or previous place of education	35	15.1%	13.4%
Other:	7	3.0%	2.7%

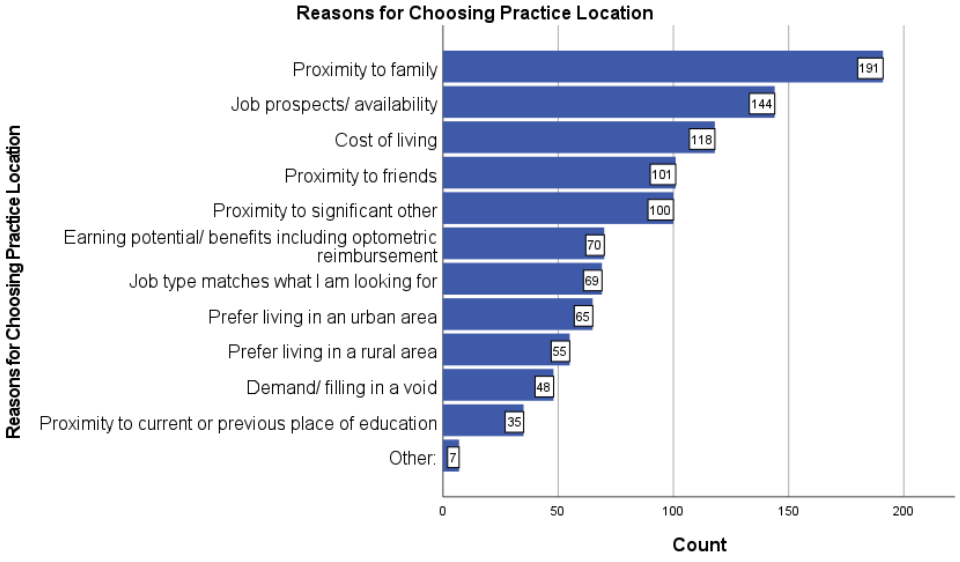

Figure 8-54 Optometry students' reasons for choosing a practice location.

Table 8-93Optometry students' reasons for choosing a practice location, separated by country of study. The top three reasons are highlighted yellow.

	Country			
	Canada		The United States of America	
	Count	Column Valid N %	Count	Column Valid N %
Proximity to family	46	83.6%	145	81.9%
Job prospects/ availability	36	65.5%	108	61.0%
Proximity to friends	31	56.4%	70	39.5%
Proximity to significant other	27	49.1%	73	41.2%
Cost of living	19	34.5%	99	55.9%
Prefer living in an urban area	16	29.1%	49	27.7%
Job type matches what I am looking for	16	29.1%	53	29.9%
Demand/ filling in a void	13	23.6%	35	19.8%
Earning potential/ benefits including optometric reimbursement	11	20.0%	59	33.3%
Prefer living in a rural area	10	18.2%	45	25.4%
Proximity to current or previous place of education	8	14.5%	27	15.3%
Other:	4	7.3%	3	1.7%

Expected Age of Retirement:

Table 8-94 The age in which optometry students expect to retire.

Expected age of retirement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	46-50 years old	5	1.9	2.1	2.1
	51-55 years old	6	2.3	2.6	4.7
	56-60 years old	39	14.9	16.7	21.4
	61-65 years old	101	38.7	43.2	64.5
	66-70 years old	53	20.3	22.6	87.2
	71-75 years old	21	8.0	9.0	96.2
	76+ years old	9	3.4	3.8	100.0
	Total	234	89.7	100.0	
Missing	System	27	10.3		
Total		261	100.0		

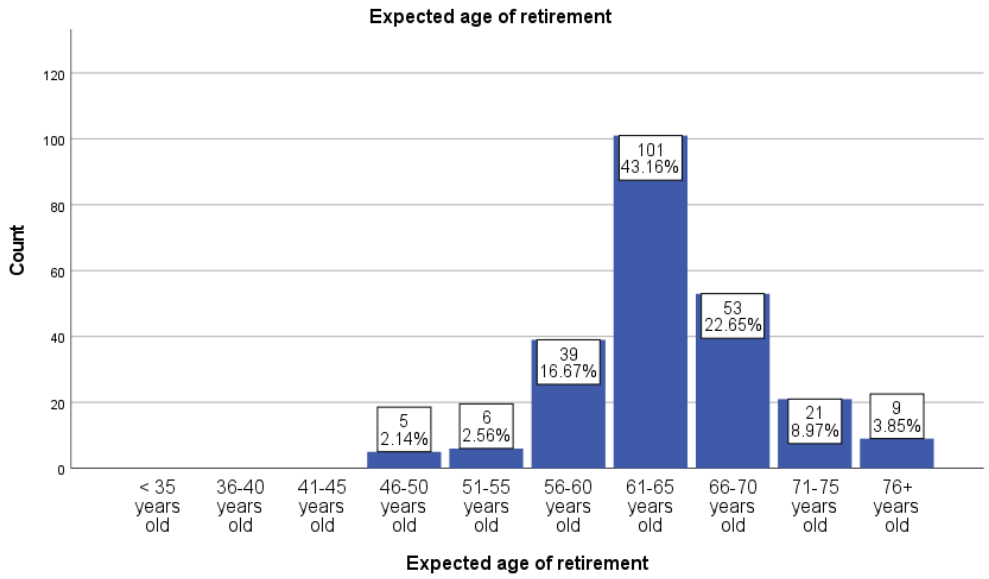

Figure 8-55 The age in which optometry students expect to retire.