Perceptions and attitudes of McGill dental students towards poverty: A case study

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“No one teaches another, nor is anyone self-taught. People teach each other, mediated by the world”

Paulo Freire

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ABSTRACT

Context: Evidence shows a strong positive correlation between poverty and numerous adverse health conditions, including oral health diseases. Low-income individuals face barriers in accessing and receiving dental care services due to many causes including tensions in their relationship with dentists. A solution to this problem lies in the training of a new generation of dentists. The education provided in dental school plays a key role in shaping the knowledge, ideas and attitudes of students towards poverty.

Objectives: To examine in-depth the perceptions and attitudes of final year dental students at McGill University towards poverty and the dental care provided to low-income patients. Secondary objectives: (i) To explore the extent to which students feel that their education in dentistry has prepared them to work with low-income patients; (ii) To understand if these perceptions shape students' plan for their professional careers.

Methodology: A qualitative case study using a participatory approach was performed based on Paulo Freire's theoretical concept of *conscientização.* The sources of data generation were semi-structured interviews (n=12), participant observation during the outreach program, and document analysis of students' essays and of the website of the McGill Faculty of Dentistry. A deductive-inductive thematic analysis strategy was used to analyze the data.

Results: Dental students exhibited incipient *conscientização* about poverty-related themes; they perceived poverty as a distant subject, and as a responsibility of the government or of the poor individual themselves. They judged Canada's dental health system as unfair to people living in poverty, but admitted having a lack of knowledge of dental services especially those offered in the welfare program, and were unable to propose strategies to ameliorate it. Students identified several challenges with respect to the McGill Dentistry outreach program including lack of continuity and comprehensiveness of care, as well as deficient compliance with clinical guidelines. Students did not present concrete plans to work with low-income communities in the future.

Conclusion: This research supports the need for dental education institutions to adopt strategies aiming to increase students' *critical consciousness* towards oral health inequalities. Reducing oral health inequalities is a matter of social justice, and dental care providers are key social actors in this endeavour.

RÉSUMÉ

Contexte: Les écrits scientifiques suggèrent qu'il y a une forte corrélation entre la pauvreté et plusieurs maladies, incluant les maladies buccodentaires. Les individus à faible revenu font face à plusieurs barrières en termes d'accès aux soins dentaires, et l'une des problématiques concerne leurs relations tendues avec les dentistes. L'éducation donnée en médecine dentaire joue un rôle clé dans la formation du savoir, des idées et des attitudes des étudiants face à la pauvreté.

Objectifs: Examiner en profondeur les perceptions et les attitudes des étudiants en dernière année de médecine dentaire à l'Université McGill à propos de la pauvreté et des soins dentaires donnés aux patients à faible revenu. Les objectifs secondaires : (i) explorer à quel point les étudiants sentent que leur éducation en médecin dentaire les a préparé à travailler avec des patients à faible revenu ; (ii) mieux comprendre si ces perceptions influencent leurs intentions professionnelles.

Méthodologie: Une étude de cas qualitative avec une approche participative a été effectuée en utilisant le cadre théorique de la conscientização selon Paolo Freire. Les sources de données générées pour l'étude sont des entrevues semi-dirigées (n=12), l'observation participative pendant le programme d'Action Communautaire, ainsi que l'analyse de documents, notamment les essais des étudiants et le site internet de la Faculté de Médecine Dentaire de Université McGill. L'analyse thématique inductive-déductive a été utilisée pour l'analyse des données.

Résultats: Les étudiants n'ont démontré que des niveaux très préliminaires de conscientização à propos des thèmes reliés à la pauvreté. Ils perçoivent la pauvreté comme étant un sujet distant et qui relève de la responsabilité du gouvernement ou des individus vivant en situation de pauvreté eux-mêmes. Ils portent tout de même un jugement sur le programme canadien de santé dentaire, en le qualifiant d'injuste envers les gens vivant dans la pauvreté, mais ils admettent ne pas bien connaitre les services dentaires offerts aux patients recevant l'aide sociale en particulier. Ils étaient donc incapables de suggérer des stratégies pour améliorer la situation. Les étudiants ont identifiés plusieurs défis en ce qui concerne le programme

d'Action Communautaire en médecine dentaire à McGill, incluant un manque de continuité et d'exhaustivité des soins, ainsi qu'un manque de respect des guides de pratique clinique. Les étudiants n'ont pas présenté de plans concrets en ce qui concerne leur intention de travailler avec des populations à faible revenu dans le futur.

Conclusion: Cette recherche soutient le besoin qu'ont les institutions d'éducation en médecine dentaire d'adopter des stratégies qui permettront de sensibiliser les étudiants et d'augmenter leur prise de conscience envers les inégalités en santé buccodentaire pendant leurs études. Réduire les inégalités en santé buccodentaire est une question de justice sociale et les professionnels en santé dentaire constituent des acteurs clés de ce projet.

1. INTRODUCTION

Oral health is an essential component of general health and well-being (Sgan-Cohen & Mann, 2007). Poor oral health is associated with negative functional, psychological and social consequences (Allison, Allington, & Stern, 2004; Petersen, 2003). In fact, caries (cavities), gingivitis, periodontal disease, tooth loss, and oral cancer may have further biological and socio-behavioral consequences, which include malnutrition, facial disfigurement, time lost from work or school, social isolation, and death in the case of oral cancer (Petersen & Kwan, 2011).

Evidence shows a strong positive correlation between poverty and numerous adverse health conditions, including oral health diseases (Sanders, Spencer, & Slade, 2006; Sgan-Cohen & Mann, 2007). Accordingly, the literature reveals that oral health indicators are markedly worse in low-income individuals than among those who are situated in upper socioeconomic scales of society (Locker, 2000; Sheiham, Alexander, & Cohen, 2011). These social inequalities with respect to oral care present a serious global health concern that are not only prevalent in low to middle-income countries, but also in high-income countries (Leake & Birch, 2008; Locker, 2000; Petersen, 2003; Schwarz, 2006; Sgan-Cohen & Mann, 2007; Sheiham et al., 2011; Williams, 2011). In Canada, the majority of dental care services are not covered by the existing public health care system (Leake, 2006). The coverage of dentals services varies according to each province. This insufficient dental coverage is justified by the high cost of dental treatment and/or the non-life threatening nature of major dental diseases such as caries and periodontal diseases (Msefer-Laroussi, 2007). Therefore, low-income Canadians who cannot afford private dental insurance suffer from inadequate dental care (Muirhead, Quinonez, Figueiredo, & Locker, 2009).

In the province of Quebec, for example, the public health insurance plan managed by the *Régie de l'assurance maladie du Québec*-RAMQ covers some patient groups and a wide range of dental services. Patient coverage extends to children under the age of ten, welfare recipients, and those requiring emergency oral hospital care. Nonetheless, evidence clearly shows that despite these services

offered, the prevalence of dental diseases such as dental caries, periodontal diseases and tooth loss is directly related to individual income levels (Brodeur et al., 2001; Brodeur et al., 2000).

The barriers faced by low-income individuals in accessing and receiving dental care services have been widely investigated from the viewpoints of both patients and providers (Croucher, 2006; Pegon-Machat, Tubert-Jeannin, Loignon, Landry, & Bedos, 2009). One such barrier relates the tension in the relationship between providers and patients. Studies have shown that people living in poverty feel misjudged by dentists, sometimes rejected and, consequently, are reluctant to consult with dentists (Bedos et al., 2005). In accordance with this research, dentists have previously admitted to difficulties in understanding people on social assistance and their oral-health behaviour and, therefore, are reluctant to accept them in their practice (Bedos et al., 2005; Pegon-Machat et al., 2009). This tension in the relationship between dentists and low-income patients is a pressing matter in the dentistry community. A solution to this problem lies with the training of a new generation of dentists.

The education provided throughout dental school plays a key role in forming the knowledge, ideas and attitudes of students towards poverty. The experience as dental student often becomes the basis for dentist-patient relationship of future professionals (Haden et al., 2003). However, there is a paucity of studies examining the perceptions of dental students towards oral health inequalities and the role of dental education in addressing access and quality of dental care for low-income patients.

In the present qualitative investigation, I intend to comprehensively examine the perceptions and attitudes of fourth year dental students towards poverty and the dental care provided to low-income patients as a means of filling this knowledge gap. More particularly, the question guiding this present study is: **How do final year dental students at McGill University perceive poverty and the dental care provided to low-income patients?** In addition, this study also aims to address the following secondary questions: 1) To what extent do the students feel that their education in dentistry has prepared them to take on the challenge of working with low-income patients? And finally, 2) How do these perceptions shape the plans of students for their professional careers?

In this MSc thesis, I draw on a case study methodology using a participatory approach and Paulo Freire's theoretical framework to gain an in-depth understanding of the aforementioned questions. This study may provide a better understanding of dental students' views, attitudes, and experiences when dealing with underprivileged communities as a means of informing educational decisions and taking action to change this critical health care problem.

The remainder of this MSc thesis is structured with the following sections: 1) literature review in which I describe the empirical research on dental students' perceptions of poverty and other relevant aspects of the topic; 2) a description of Paulo Freire's theoretical framework, which guided the methodology of this qualitative study; 3) participatory research approach where I explain why and how this approach was employed; 4) methodology where I explain the qualitative case study used; 5) results that presents the research findings; 6) discussion where I explore implications of this research; and 7) concluding remarks.

2. LITERATURE REVIEW

I have structured this literature review in five main topics. First, I discuss poverty in Canada and Quebec. Second, I summarize the available research evidence on the relationship between poverty and oral health diseases. Next, I present an overview of the oral health services in Canada and Quebec and explore the research regarding the relationships between dentists and low-income patients. Last, I examine how the dental education literature covers the provision of care to low-income patients. This last section includes a comprehensive literature review of the empirical research, focusing on dental students' perceptions of poverty, their experience of care for low-income patients, and their potential future plans for providing dental care to these patients.

2.1. Poverty in Canada and in Quebec

There is no universally accepted definition of poverty (Sgan-Cohen & Mann, 2007). Poverty has been defined in several ways; these definitions range from absolute interpretations, the inability to obtain the essentials for life, to a comparative understanding of being at a relative socio-economical disadvantage when compared against others living in the same community (House of Commons Canada, 2010). The United Nations (UN), for example, endorses a multi-dimensional understanding of poverty, which reflects the indivisible and interdependent nature of all human rights:

> "Poverty may be defined as a human condition characterized by sustained or chronic deprivation of the resources, capabilities, choices, security and power necessary for the enjoyment of an adequate standard of living and other civil, cultural, economic, political and social rights" (Office of the High Comissioner for Human Rights, 2001).

High-income countries tend to adopt comparative definitions and measures of poverty. In Canada, although the federal government has not yet adopted an official definition of poverty, a recent

report issued by the House of Commons entitled "Federal poverty reduction plan" endorses Peter Townsend's[1] poverty definition:

> "Individuals, families and groups in the population can be said to be in poverty when they lack the resources to obtain the types of diet, participate in the activities and have the living conditions and amenities which are customary, or at least widely encouraged, or approved, in the societies to which they belong. Their resources are so seriously below those commanded by the average individual or family that they are, in effect, excluded from ordinary living patterns, customs and activities." Peter Townsend's study, (as cited in (House of Commons Canada, 2010, p. 1))

Despite the absence of a consensus regarding the definition of poverty, a proxy measure for poverty commonly adopted by researchers in Canada has been the Low-Income Cut-offs (LICOs) published annually by Statistics Canada (the federal government agency that produces statistics on the country's population, resources, economy, society and culture). "LICOs are income thresholds below which families devote a larger share of income to the necessities of food, shelter and clothing than the average family would" (Statistics Canada, 2010). LICOs estimate an income level at which families are expected to spend 20 percentage points more than the average family on basic needs. The LICO's vary according to family and community sizes and are calculated before and after tax. For example, a one-person household in a large metropolitan Canadian city such as Montreal earning a net annual income of less than CAN$ 22,171 would qualify as being under the low income category (Statistics Canada, 2010). Because LICOs indicators are based solely on income, they do not constitute poverty measures *per se*. In employing the LICOs definition with income levels calculated before tax deductions measured in the 2008/2009 (Statistics Canada, 2010) 4.426 million (13.6%) Canadians were found to belong to the low-income class.

[1] Professor Peter Townsend was a British sociologist well known for his contribution to analysis and policy-making in the areas of poverty and inequality, health inequalities, disability and older people.

Using the same proxy measure of poverty (i.e., LICOs before tax), in 2008, there were 12.6% of the population of Quebec living with a low income of which 12.8% are children under 18. This number refers to 950,000 people, including 192,000 children (Quebec Institute of Statistics, 2011).

In summary, high-income countries tend to use comparative definitions and measures of poverty where persons are considered at a relative socio-economical disadvantage or "poor" when compared to others living in the same community. Surprisingly, the current number of low-income individuals in Canada and Quebec demonstrate that poverty remains a significant challenge.

2.2. Poverty and inequalities in oral health

Health inequalities are a major problem worldwide (Sheiham, Alexander, Cohen et al., 2011). The World Health Organization (WHO) defines health inequalities "as differences in health status or in the distribution of health determinants between different population groups" (2011). Socio-economic conditions typically cause health inequalities. For example, place of birth and/or residency strongly influences an individual's exposure to risk factors for particular diseases (WHO, 2008).

Health inequalities are unjust and avoidable when populations are made vulnerable because of underlying socio-economic conditions (Sheiham et al., 2011). Health inequalities related to socio-economic status are a concern not only in low to middle income countries, but also within populations of high-income countries (Marmot & Bell, 2011). Marmot (2005) also warns that reducing these inequalities is a matter of social justice: "There is no necessary biological reason why life expectancy should be 48 years longer in Japan than in Sierra Leone or 20 years shorter in Australian Aboriginal and Torres Strait Islander peoples than in other Australians" (p. 1103).

Oral diseases have been shown to be associated with socioeconomic status (SES), where low-income patients have a higher risk of oral health issues than their high income counterparts. These SES-oral health trends have been found to occur on a global scale (Levin, Davies, Topping, Assaf, & Pitts, 2009; Locker, 2000). Inequalities exist both within and among countries with regard to the severity and prevalence of oral diseases (Williams, 2011). In addition, there seems to be a dose-response relationship

in that the lower an individuals' social position, the poorer his/her oral health conditions (Leake & Birch, 2008; Watt, 2007). SES persons are less likely to visit a dentist (Statistics Canada, 2010) even when they have access to dental services, such as those receiving social assistance in Quebec (Bedos, Brodeur, Benigeri, & Olivier, 2004).

In Canada, a recent government-issued survey reports that the oral health condition of individuals from lower income families was nearly two times poorer when compared to individuals from higher income families (Statistics Canada, 2010). This survey shows that low-income individuals make fewer dental consultations in a given year, have lower rates of annual check-ups, prevention procedures or treatments, while either missing dental visits altogether or refusing recommended care due to costs.

Oral health inequalities also exist in the province of Quebec. Brodeur et al. (2001) in a study of Quebec adults aged 35-44 years old found that the risk of acquiring periodontal disease of individuals with a family income below $30,000 increased two-fold when compared to persons with a family income of at least $60,000. In terms of dental caries, individual adults aged 35-44 years with low family income are nearly four times more likely to have dental caries than persons with a high family income (Brodeur et al., 2000). Children aged 5 to 6 years old whose family's income is below $30,000 a year have more than twice the rate of caries than children with a family income of more than $50,000 a year (Brodeur, Olivier, Benigere, Bedos, & Williamson, 2001).

Understanding the social determinants of health inequalities is recognized as an important step in dealing with health inequalities (Comission on Social Determinants of Health, 2008). Attention must be directed not only to the cause of disease but also to the "causes of causes" (Comission on Social Determinants of Health, 2008). In oral health, for instance, poor diet and lack of oral hygiene are causes of oral diseases; however, "the causes of causes", rooted in social conditions such as poverty, must be addressed in order to improve oral health among individuals, regardless of income or social status (Marmot & Bell, 2011). Acting on these underlying issues will drastically reduce the health inequalities (Sheiham et al., 2011).

To summarize, oral health inequalities are a global issue that affect not only individuals in low to middle-income countries but also low-income communities in high-income countries (Marmot & Bell, 2011). This concerns Canada and Quebec as their low-income citizens show comparatively worse oral health than their high-income counterparts (Brodeur et al., 2001; Brodeur et al., 2000; Statistics Canada, 2010). To deal with the underlying social determinants of health inequalities is the strategy endorsed by the WHO to tackle these conditions (Comission on Social Determinants of Health, 2008). Therefore, it is essential to take social context into consideration when addressing oral health needs of low-income individuals (Sheiham et al., 2011).

2.3. Oral health care delivery system in Canada and Quebec

During the 1960's, Canada created a publicly-funded health care system, sanctioned by the federal Canada Health Act (CHA) of 1985. The CHA established the primary goal of the Canadian Medicare system, which is "to protect, promote and restore the physical and mental well-being of residents of Canada and to facilitate reasonable access to health services without financial or other barriers" (1985, p. 5). The CHA contains five criteria (i.e., public administration, comprehensiveness, universality, portability, and accessibility) that must be met by each provincial health care service in order to qualify for federal funds (Canada Health Act, 1985). Canada's public health care system is considered by Canadians to be a symbol of its societal values of equity and solidarity (Leake, 2006). The delivery of health care is under the jurisdiction of the provinces and territories. Thus, each province has its own health insurance plan (Statistics Canada, 2010).

Medicare offers universal coverage of all medically-required physician and hospital-based services (Leake & Birch, 2008). However, most oral health services are not included in Medicare. The Canadian Health Measures Survey (2010) showed that only 6% of Canadians are covered by public funds, while 62% of Canadians are covered by private dental insurance. Accordingly, this means that approximately one third of Canadians are not covered by any dental insurance, and must pay for required dental services in order to maintain oral health.

The oral health programs funded by Medicare vary according to province and territory. Publicly funded oral health care expenses range from 1.5% in Ontario to 77% in Nunavut (Yalnizyan & Aslanyan, 2011). In Quebec, the public insurance plan, which is regulated by the *Régie de l'assurance maladie du Québec* (RAMQ), covers emergency oral hospital care for all Quebec residents and basic dental care for children under the age of ten (e.g., exams, fillings and endodontics). For those under the welfare program, exams, fillings, extractions, complete and partial dentures are covered. However, RAMQ excludes important preventive procedures such as cleanings, application of fluorides, and sealants for children. In addition, dental services offered to welfare recipients exclude endodontic treatments, crowns and fixed prostheses (Régie de l'assurance maladie du Québec, 2010).

In summary, although the Canadian health care system offers coverage for an extensive number of medical and hospital-based services, most oral health services are not included in Medicare (Leake & Birch, 2008). This deficient dental care coverage by Medicare has a disproportional impact on low-income communities since they cannot afford private dental insurance.

2.4. Dentist and low-income patient relations

There are several barriers faced by low-income patients when accessing dental care services (Allison et al., 2004). One such barrier relates to the tension in the relationship between dentist and patient, a phenomenon that has been discussed in recent literature, using different methodological perspectives (Bedos et al., 2003; Bedos et al., 2005; Mofidi, Rozier, & King, 2002).

Bedos and colleagues conducted several studies of welfare recipients (Bedos et al., 2005; Bedos, Levine, & Brodeur, 2009). People receiving social assistance value their teeth and dental appearance and have their self-esteem affected by having poor oral health, which may affect their re-integration into the work force. Interestingly, this research reveals that poor oral health can in fact perpetuate the poverty cycle (Bedos et al., 2009). Another study showed those persons tend to seek dental care only when they have experienced symptoms of dental illness, defined as pain in the oral cavity (Bedos et al., 2005).

The literature also addressed the power dynamic between dental professionals and low-income patients and the perceptions held by these patients about their dental professionals. Welfare recipients believe dentists are motivated by financial interests and often mistrust their diagnosis. This patient group often feels stigmatized by dentists due to their inability to afford expensive dental treatments. These patients generally perceive dentists to be wealthy individuals at the highest end of the social scale and who lack empathy regarding their problems (Bedos et al., 2003; Bedos et al., 2005). A qualitative study conducted in the United States (U.S) revealed that caregivers of Medicaid-insured children[2] feel themselves and their children to suffer severe discrimination for their Medicaid recipient condition. The attitudes and behaviour of dentists were also described as impersonal and occasionally disrespectful (Mofidi et al., 2002).

The views and experiences of dentists on treating low-income patients have also been studied. In these studies, dentists identified problems in treating these individuals such as irregular attendance at treatment sessions, failure to complete treatment schedules and communication barriers (Bedos. et al., 2006; Loignon et al., 2010; Pegon-Machat et al., 2009). A qualitative study conducted in France and Quebec focuses on the experiences of dentists with low-income patients who benefit from public insurance programs. These dentists considered the irregular attendance of these patients at dental care appointments a major problem, which lead many providers to avoid receiving them in their practice and to perceive such patients in a negative manner (Bedos et al., 2006; Pegon-Machat et al., 2009). Conversely, a recent qualitative study interviewed dentists who have a trusting relationship with disadvantaged communities in Montreal and accredit this trust to their socio-humanistic approach to practicing dentistry, which is based on empathy and communication. In this study, dentists argue that non-judgmental attitudes and time spent listening to patients, including issues not related to dental care, are key to improving dentist-patient relationships and building a solid therapeutic alliance (Loignon et al., 2010).

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[2] Medicaid: a public assistance program in the U.S. which covers low-income patients.

To summarize, there is evidence that tensions exist between dentists and low-income patients, which may make the therapeutic alliance difficult. Misconceptions, negative stereotypes, irregular attendance at treatment sessions are all contributing problems (Bedos et al., 2005; Pegon-Machat et al., 2009). Addressing these problems during dental education would most definitely improve the dentist-patient relationships.

2.5. Dental Education

Investing in dental education is one strategy to address the challenge of improving relationships between low-income patients and dentists (Graham, 2006). As noted by Haden et al. (2003): "Academic dental institutions are the fundamental underpinning of the nation's oral health" (p. 564). Dental education plays an important role in stimulating social awareness among the new generation of dentists (Davis et al., 2007). Accordingly, Smith et al. (2006) found a positive relationship between dental school curriculums that emphasize providing care to underserved patients and the subsequent will of students to work with these patients in the future. Current evidence suggests that "community-based-education, and contextual environment significantly predict plans to care for underserved populations upon graduation" (Davidson et al., 2007). It is, therefore, important to review what has been published regarding the perceptions and attitudes of dental students towards low-income patients.

I have performed a comprehensive literature review of empirical research on the following: articles identifying the perceptions of dental students towards poverty and the role of dental education in preparing these students to care for low-income patients. The search strategy, studies identified, main research findings and gaps are described next.

2.6. A comprehensive review on dental students' views of poverty

The review question that guided this search was: what are the perceptions of dental students regarding poverty, the role of dental education in preparing them to care for low-income communities and their plans to provide dental care to these individuals in the future?

The identification of relevant papers occurred in two phases: (1) searching of databases, and

citation tracking and then, (2) checking titles and abstracts. After formulating the research review question, I used two relevant studies (Holtzman & Seirawan, 2009; Smith et al., 2006) as primary sources to develop a search strategy in various databases using MeSH terms in consultation with an experienced McGill librarian. Then, I performed a search in ISI web of Science for 'citers' and 'citees' using a snowballing technique based on the initial papers indentified. After retrieving selected papers, I used thematic analysis to summarize the main findings.

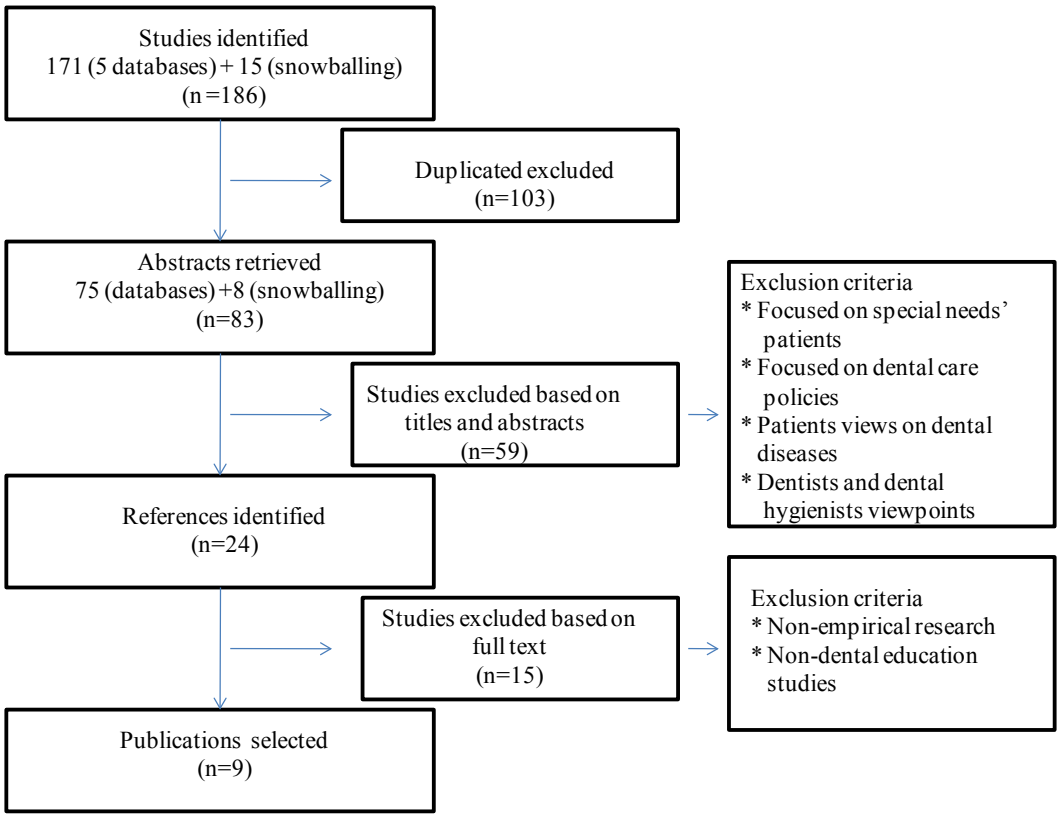
I searched MEDLINE and EMBASE (via OVID online), CINAHL, ERIC, and the Latin American and Caribbean health science database (LILACS) up to May 2010 and updated the search in June 2011. The results of EMBASE (71), ERIC (6), and CINAHL (24) overlapped with the MEDLINE results (75). I limited the search to English studies published in all database except LILACs where studies published in English, Portuguese and Spanish where also searched. The search strategy and MeSH terms are listed in Appendix A.

I retrieved 171 records (title, source, abstract) from the database searches and 15 records from the snowballing technique using the 'citers' and 'citees' function of the ISI web of Science, which resulted in 186 records. After excluding the duplicate records, the final number of records from this search strategy was 83 (75 from databases and 8 from snowballing). Next, I applied a set of a *posteriori* defined inclusion and exclusion criteria. I revised the titles and, if necessary, abstracts of all papers and excluded papers that focused on: (a) dental care to patients with special needs, (b) dental care policies for access to dental care services, and (c) patients views of dental diseases, and (d) dentists and dental hygienists viewpoints. The final number of potentially relevant papers was 24. I read the full text of all 24 papers and selected 9 studies (Appendix B) by excluding: (a) non-empirical and (b) non-dental education studies. Figure 1 indicates the flow diagram of this search.

I opted not to assess the methodological quality of the included studies due to the scope of this investigation (i.e. a master's thesis), where a systematic review is not required and time and financial limitations apply. Moreover, given the scarcity of papers on this subject, I decided to focus more on the content of papers rather than their methodological rigour. After retrieving the nine included papers, I used thematic analysis to summarize the main findings. Thematic analysis is a method that identifies,

analyses and reports patterns (i.e., themes) within data (Braun & Clarke, 2006; Fereday & Muir-Cochrane, 2006). It has been used as a synthesis method (Thomas & Harden, 2008) by considering the studies retained as data. I focused on the results and discussion sections of each paper in order to find themes related to the perceptions and attitudes of dental students towards poverty and the role of dental education in providing them skills to care for low-income patients. This is a deductive thematic analysis synthesis since the research question guides the themes identified (Braun & Clarke, 2006).

Figure 1 Flow diagram of the search in databases.



Appendix B presents an overview of the included studies (n=9) with details of their main characteristics (authors, country and year of publication, aim of study, study design, participants and

findings). The included studies were all surveys conducted in the U.S. One study was a report regarding the results from the 2008 American Dental Education Association (ADEA) survey of graduating dental school seniors (Okwuje, Anderson, & Valachovic, 2009). Additionally, three other studies used data from ADEA surveys (Carreon, Davidson, Andersen, & Nakazono, 2011; Davidson et al., 2007; Davidson, Nakazono, Carreon, Bai, & Afifi, 2009). Another three surveys analyzed the impact of community-based dental education on the views of dental students towards disadvantaged patients (Habibian, Elizondo, & Mulligan, 2010; Holtzman & Seirawan, 2009; Kuthy, Heller, Riniker, McQuistan, & Qian, 2007). The thematic analysis of the included studies allowed me to identify four majors themes as follows.

Theme 1: Society's responsibility to provide dental care for the underserved

Studies report that dental students hold beliefs that society is responsible for providing dental care to underserved populations (Holtzman & Seirawan, 2009; Okwuje et al., 2009). In the ADEA (2009) survey of the U.S. dental school seniors, 70% of students believe that society must ensure and provide care to all, and it is considered an ethical and professional obligation; almost 60% of students stated that all patients have the right to receive basic oral health care, regardless of their ability to pay for the recommended services. Holtzman and Seraiwan (2009) in another US-based survey explored these issues among freshman dental students. These students were surveyed at three time points during their first year of dental school. Overall, first year students maintained their opinion that society should provide dental care to all, but they became increasingly uncertain as to how the issue should be addressed.

Theme 2: Preparedness to provide care for the underserved

With regard to feeling adequately prepared for providing dental care to patients from disadvantaged backgrounds, several studies presented different views. Smith et al (2006) found that 68.6% of students felt well-prepared to care for this patient demographic. In this study, the authors also argue that "the level of preparedness was correlated with students' and practitioners' attitude and

behaviour concerning providing care to underserved patients" (p. 406). In contrast, Davidson and colleagues (2009) found that 43% of fourth year dental students reported that schools did not provide them with adequate opportunities to practice in underserved areas. In an earlier study (Davidson et al., 2007), students thought the time devoted to cultural competency in the school curriculum was inadequate and, as a result, felt ill-prepared to treat racially, ethnically, and culturally diverse populations.

Theme 3: The use of community-based education programs to improve awareness and willingness to care for underserved populations after graduation.

The importance of community-based-education programs for exposing dental students to current social issues was emphasized by many authors. These studies suggested that introducing community-based experiential and extramural activities as learning tools has contributed to the level of comfort and future willingness of dental students to treat low-income patients (Davidson et al., 2009; Kuthy et al., 2007; Kuthy et al., 2005; McQuistan, Kuthy, Heller, Qian, & Riniker, 2008). Kuthy et al' study (2007) revealed that 96.5% of students felt comfortable in treating low-income patients following their community-based experience, while 55.7% of students were willing to continue treating these patients in the future.

Theme 4: Dental students' future plans and willingness to care for underserved populations

Several studies have demonstrated that dental students' willingness to care for underserved populations is a controversial issue. Despite the focus of the Pipeline[3] program in the U.S. on this subject, a recent evaluation has shown that the program has had no short-term impact (5 years) on

[3] Pipeline program: the Robert Wood Johnson Foundation and the California Endowment launched the Pipeline, Profession, and Practice program in the U.S. in 2001. This program provides funds for 15 dental schools to promote awareness towards underserved populations' needs and to reduce dental care access disparities (Formicola et al., 2009).

students' plans to provide care to the underserved community (Davidson et al., 2009). Smith et al' findings (2006) confirm that only 50% of students plan to work with these patients. However, Kathy et al (2005) found that students with previous experience in working with the underserved in dental school demonstrated more willingness to treat these populations.

In conclusion, using a comprehensive search strategy and a *posteriori* defined inclusion and exclusion criteria previously described, I retrieved nine relevant empirical research papers on dental students' perceptions of poverty, their preparedness to work with low-income patients, and their future plans to work with these patients. Although these studies address dental students' perceptions of providing oral health care to low-income populations, none specifically addressed dental students' perceptions of poverty in a broader sense. For example, dental students felt that society is responsible for providing basic dental care for those in need (Okwuje et al., 2009), but they were unable to suggest better strategies or programs to implement change (Holtzman & Seirawan, 2009). With regard to dental students' preparedness to work with disadvantaged communities, the included studies reported different views. In some papers, students felt well-prepared to work with these patients, (Smith et al., 2006) while in others it was recommended that dental schools needed to invest more in cultural competency (Davidson et al., 2007). Furthermore, students agreed that community-based education programs are important for their training and may contribute to raising awareness of the needs of underserved populations (Kuthy et al., 2007; Kuthy et al., 2005; M. McQuistan et al., 2008). In terms of their future plans to work with these patients, most students were not planning to provide care to underserved patients (Davidson et al., 2009).

2.7. Literature review summary

In this literature review, I attempted to cover topics relevant to the development of my research project: the definitions and measures of poverty, the relationship between oral health inequalities and dental diseases and a brief explanation of the Canadian health care system and oral health services. I examined the relationship between dentists and their low-income patients. In addition, I included a comprehensive review of the literature on empirical research concerning dental students' perceptions of

poverty, the role of dental education in preparing them to care for low-income communities and their plans to provide dental care to these individuals in the future.

Although these studies presented important insights about dental students' views of oral health inequalities, there is still room for further investigation. For instance, it is important to explore how dental students perceive poverty in a broader sense. There is a need to identify how dental education could better prepare students to meet the challenge of working with these populations in the future. Therefore, it is appropriate to continue developing this field of research and to adopt further qualitative methodological approaches. Investigating these issues is an important step in improving dental education strategies concerning oral health in poverty, which may impact the attitude of future dentists towards the provision of dental services to low-income patients.

In the attempt to fill in the gaps identified in this review, I conducted a qualitative research project which aimed to assess the perceptions of final year dental students towards poverty and dental care provided to low-income populations at McGill University. Because this investigation involves issues relating to social justice, I will take a constructivist point of view and employ a critical theoretical framework, while the use of a participatory research approach was coupled to the qualitative methodology.

3. THEORETICAL FRAMEWORK

Paulo Freire's ideas were developed in Brazil in the late 1950s and early 1960s. As an educator, he initiated his studies by working with illiterate adults in the poorest part of Brazil - the rural northeast. In this context, Paulo Freire's pedagogy was born, surrounded by poverty and social disparities, which contributed to its focus on social justice. Freire's philosophy is a pedagogy for the oppressed (Freire, 1996).

Freire developed an approach to education that links the identification of problematic issues to positive action for social change. He claims that education has a strong interface with politics (in a broader sense) and should contribute to the positive transformation of society, in other words, "an education of and for citizenship" (Freire, 1997b). For him, the act of teaching is to "create critical thinkers who will find their place in society" (Freire, 1997b). In Freire's theory, knowledge is socially constructed through a *dialogue*[4] among equals. Students are co-learners in this process, and not "empty vessels" where knowledge is "deposited". Freire calls this last *"banking" education*, where students are depositories and teachers are the depositors of knowledge. Instead, Freire supports an education system based on *problem-posing*, which is the process of developing a critical reflective awareness through deconstruction of one's own values to understand the worldviews, values, and experiences of others. It implies always approaching problems with doubt. Going through this process, one may change one's own perceptions, attitudes, or beliefs. According to Freire, this process leads to the empowerment of human beings who may be able to transform their own reality into.

[4] All italics refer to Freire's concepts.

Conscientização

The Portuguese word *conscientização* means both *critical consciousness* and personal engagement with knowledge. Freire emphasizes that educators play an important role in promoting *critical consciousness* (Freire, 1973). The author develops the concept of *critical consciousness* by contrasting and comparing it with other types of consciousness, such as *naïve consciousness*, and magic/ fanatic consciousness. According to Freire, *naïve consciousness* perceives causality as a static phenomena, an established fact, and is thus misleading in its perception of reality. On the other hand, magic consciousness understands facts as a result of superior power by which reality is controlled and to which individuals must therefore submit. This type of consciousness is closely linked to fatalism. Therefore, both of them fail to prompt individuals to reflect upon and to take an active position with regard to social problems. This is where *critical consciousness* comes in. *Critical consciousness* involves a critical awareness of one's social reality, which Freire calls "reading the world" (Freire, 1970), and fosters action towards social justice. "Critical consciousness is integrated with reality; naive superimposes [consciousness] itself on reality and fanatical [consciousness] adapts to reality" (Freire, 1973, p. 39). The development of *critical consciousness* is called *conscientização*. As Freire (1985) noted, *conscientização* is the "the process by which human beings participate critically in a transforming act" (p. 106).

The aim of *dialogue*, *problem-posing* and *conscientização* is *praxis*. *Praxis* is a key concept in Freire's ethical ideal. It is the active process through which people reflect and act simultaneously, with a view to transforming individual and social conditions. C*onscientização* leads to *praxis*, as Freire (1985) noted that "there is no *conscientização* outside of *praxis*, outside the theory-practice, reflection-action unity" (p. 160). The dissociation between reflection and consequent action generates either *verbalism* or *activism*. *Verbalism* implies critical reflection without action to affect change, and *activism* is acting without critically reflecting. Both fail to promote *praxis* (Freire, 1996). *Conscientização* happens when *critical consciousness* is materialized in *praxis* (Roberts, 1996).

Paulo Freire's concepts have been largely used in critical pedagogy, and have inspired educators in diverse contexts. Freire's work is also used in health, particularly in health promotion (Cardoso & Cocco, 2003; Connor, Ling, Tuttle, & Brown-Tezera, 1999; Fernandes & Backes, 2010). However, there is scarce use of Freire's theory in empirical research within the field of health professional education. Rozendo et al. (1999) used Freire's concept of education to analyse the teaching-practices of professors in the health field and concluded that these practices were based on the transfer of knowledge (i.e., *banking-education)*. Other research in Brazil evaluated the impact of *problem-posing* as a pedagogical approach to teach senior dental students about the main topics of the public primary health care policy versus the traditional teaching approach they were previously exposed to in dental school. The authors concluded that emphasizing *problem-posing* education raises awareness towards social issues (Pires & Bueno, 2006).

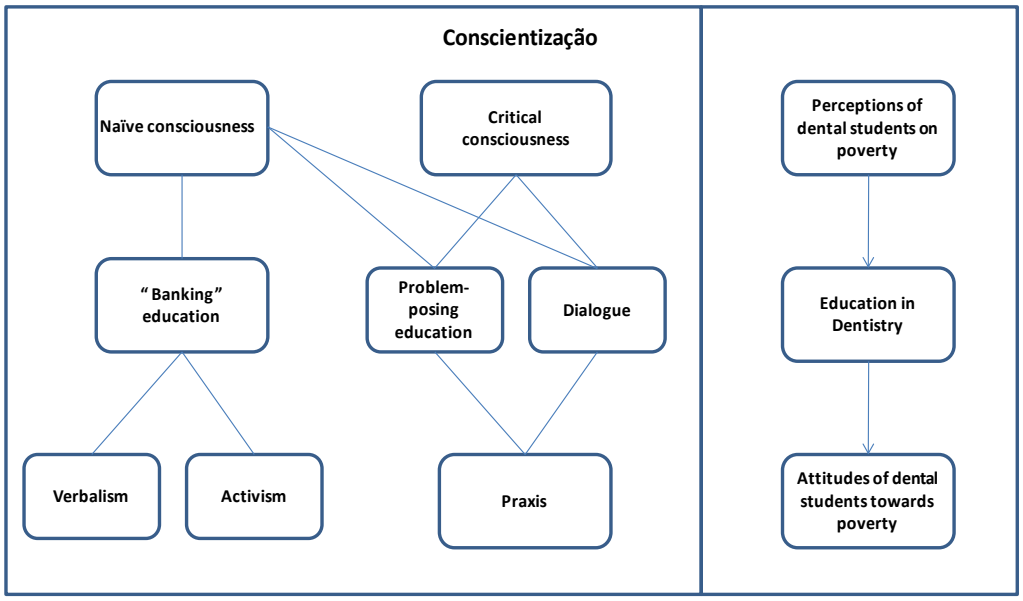
Conceptual Framework

I used Paulo Freire's theoretical concept of *conscientização* to guide this research. In this investigation, I aimed to understand the perceptions and attitudes of dental students toward poverty and dental care services offered to people living in poverty. I also wanted to acquire knowledge on how dental school prepares students to deal with such issues. Perception, here, is understood as the way in which dental students "read the world". More specifically, students' views on poverty and dental cares services offered to the low-income population Attitudes here are seen as a proxy for *praxis*, i.e., action based on *conscientização;* where dental students may take action to help address social problems such as poverty and the marginalization of low-income patients from dental care facilities and treatments. In addition, the Freire's concepts of *problem-posing* and *dialogue* were used to shed light on dental school education strategies as a means of raising *critical consciousness* towards these issues among future dental care providers.

Figure 2 presents the conceptual framework of this research. It is important to highlight that *conscientização* is a dynamic-evolving process and not limited to stages of consciousness. Therefore, this conceptual framework aims to provide scenarios that could happen during dental education. At the

beginning of dental school, students had developed perceptions towards poverty. Students' views on this issue could be either naïve or critical, depending on their previous experiences before becoming dental students. Discussing issues concerning oral inequalities in dental schools in a positive light may encourage students to reflect upon the challenges faced by low-income patients and their poor oral health. Once in dental school, students could be exposed to either a more critical education based on *problem-posing* and *dialogue* to foster *critical consciousness* or to a model of *"banking" education* without critical reflection. In a dental school fostering *critical consciousness*, students would be more likely to develop their practice based on *praxis*, favoring a more socially just dentistry.

Figure 2- C*onscientização* in undergraduate dental education



4. PARTICIPATORY RESEARCH APPROACH

I have also incorporated a participatory research approach in the present investigation. Participatory research has been defined as the "systematic enquiry, with the collaboration of those affected by the issue being studied, for the purpose of education and taking action or effecting social change"(Green et al., 1995). In this context, research is conducted as collaboration among equals, with each person bringing their expertise to the team (Wallerstein & Duran, 2008). Macaulay et al (1999) claim that participatory research aims to find a balance between excellence in research and benefiting knowledge users.

In a critical literature review of participatory research, Cargo and Mercer (2008) found three primary values or drivers behind participatory research: knowledge translation, social justice, and self-determination The social justice value is the strongest driver for this research since it deals with oral health inequalities by investigating dental students' perception of poverty and dental care services to low-income individuals.

Furthermore, the adoption of a participatory approach appears congruent with this research theoretical framework. Participatory research has two historical traditions: the Northern and Southern traditions. The Northern tradition is based on the work of Kurt Lewin, which aimed to use collaborative research to improve systems. Freire's writings provide the theoretical foundation of the Southern tradition of participatory research, also called the emancipatory tradition (Wallerstein & Duran, 2008). Freire was a strong proponent that knowledge comes from the people. He developed his well-known method of teaching illiterate adults to read, documented in 'Pedagogy of the oppressed', by dialoguing with peasants in rural Brazil and Chile while he was in exile (Freire, 1997a). In the southern tradition of participatory research, knowledge is no longer exclusive to the academy; instead, it is socially co-created taking into consideration people's daily experiences. Community members are no more "objects of study" but become involved in the research process as equal partners (Wallerstein & Duran, 2008).

This research occurred during McGill Faculty of Dentistry reformulation of its curriculum aiming at better addressing oral health disparities. The faculty plans to train dental students not only to clinically serve underserved communities but also to exert leadership in dental organizations and government to address oral health disparities (McGill website). In participatory research, this fruitful moment through which a community is prepared to take action on an issue is known as readiness factor (Plested, Edwards, & Jumper-Thurman, 2006).

In this participatory research context, an Advisory Committee, consisting of representatives of those affected by the issue being studied, was convened to partner with the researcher throughout the research process. The committee consisted of two faculty members of McGill Faculty of Dentistry, and two recently graduated McGill dental students. The two faculty members were suggested by the director of the Oral Health & Society Division at McGill faculty of Dentistry. One was chosen mostly because her involvement with the outreach program, and the other due to her leadership in enhancing communication skills in the curriculum of the McGill faculty of Dentistry. Students from the current final year of the dental school were the first invited to join the committee; however, they felt overwhelmed with exams and applications to residency programs, and were unable to assume the year long commitment. After consulting my thesis committee, we decided to invite recently graduated students who had received awards due to service work or projects they have given to communities, and are still involved with McGill in the dental residency training program.

The suggestion of both residents came from one of the faculty members involved in the advisory committee. The inclusion of recent graduated dental students was deemed appropriate: as alumni they can still represent students' views. Also, as dentists in residency training they can provide a more mature reflection about their experiences as dental students and possibly express their ideas in the advisory committee more freely. I recognize the ideal of including representatives of low-income patients on the advisory committee (e.g., patients themselves or representatives of advocacy groups fighting poverty in Montreal), but time and funding constraints – a Master's thesis timeline and limited funding- impeded such endeavour.

I held two meetings with the advisory committee during one academic year to address the following objectives: 1) to discuss the research protocol (October 15th, 2010), and 2) to discuss interpretation of preliminary data and to plan dissemination of results (April 21st, 2011). I describe those meetings in the methodology and discussion sessions of this thesis.

5. METHODOLOGY

I located this study in both constructivism and critical epistemologies (Green & Thorogood, 2004). Through a constructivist lens, I sought to understand how dental students' perceptions of poverty and the provision of dentals services for low-income patients are socially constructed. The exploration and application of Paulo Freire's idea of *conscientização* complements this constructivist analysis, offering a critical perspective on dental education. In addition, the use of a participatory approach reinforces this epistemological position since this research approach also draws upon constructivist and critical epistemological paradigms (Israel, Schulz, Parker, & Becker, 1998).

5.1. Research design

I selected a case study research design with a participatory approach as the research strategy for this investigation. Case study research is generally defined as an approach in which researchers investigate a *bounded system* (the *case*) in-depth in its context over time, using numerous sources of information (Creswell, 2007; Hesse-Biber & Leavy, 2011). In this study, the case is one class of dental students at McGill University in their final year of dental school.

The choice of a single case study as the methodological approach was mainly informed by the research questions. The case study is a particularly appropriate methodological strategy to answer "how" and "why" research questions by investigating a complex and contemporaneous phenomenon in-depth (Yin, 2009). In particular, I adopted Stake's (1995) case study strategy. Applying Stake's strategy represents the most appropriate approach to answering my research questions. This is because Stake's approach is rooted in constructivist epistemology and developed out of his study of educational settings, and because his approach converges with Paulo Freire's theoretical framework.

According to Stake, each *case* carries a unique richness which researchers should strive to deeply understand. Specifically, this study qualifies as both an *intrinsic* and *instrumental* case study, as defined under Stake's typology. This case is *intrinsic* because the McGill Faculty of Dentistry carries an

important commitment to poverty issues. The school has many faculty members working and doing research on oral health inequalities. It has an outreach program, and recently opened a dental clinic to provide free dental care to low-income families.

In addition, this case is also *instrumental*, according to Stake's typology, because it allows a better understanding of dental students' perceptions of and attitudes towards poverty and the provision of dental services for low-income individuals. This case constitutes a "good opportunity to learn" about this phenomenon, making it an instrumental case, according to Stake's typology (Stake, 1995).

The Case

I selected the case, the 2010-2011 fourth-year McGill dentistry students cohort, because it represents an *intrinsic* and an *instrumenta*l case, accordingly to Stake's typology. I chose senior students in their fourth and final year of dental school, assuming that they would be more mature and better able to provide a clear picture of the McGill dental school experience and their plans for practicing as future dentists. Furthermore, this case was easy to access and hospitable to my inquiry. In addition, undertaking a single case study is feasible within a Master's project timeline. These pragmatic reasons for selecting this case in particular are considered reasonable and even recommended by Stake.(Stake, 1995). The case consists of a total of 34 fourth-year dental students, 22 women and 12 men.

The Case - Academic Context

The McGill undergraduate dental program lasts four academic years. In the first 1.5 years, dental students are taught the fundamentals of health sciences along with medical students. Afterwards, students receive seven months of pre-clinical training. For the last two years, dental students receive clinical training at the McGill undergraduate teaching clinic at the Montreal General Hospital (MGH). The student clinic is where students have the majority of their interactions with patients.

The McGill Faculty of Dentistry aims to address oral health disparities by training and encouraging dental students to practice in underserved communities and to exert leadership in dental

organizations and government. In fact, the current faculty mission states its commitment to "the promotion of oral health and quality of life in the whole population, with emphasis on the needs of under-served communities and individuals" (McGill website).

As such, during dental school, students are exposed to poverty related issues through lectures and in the outreach program. The McGill dental school provides courses related to poverty in all years of the program. They are:

1) Year one: Dentistry Apprenticeship 1;

2) Year two: Dentistry Apprenticeship 2 and Dental Public Health 1;

3) Year three: Dental Public Health 2 and Community Clinics.

For more details on these courses and how they address poverty issues, please refer to Appendix C.

In general, dental students are mainly exposed to low-income patients in the outreach program. The McGill outreach program assists disadvantaged populations from 24 different community groups and agencies in Montreal. The goals of the program are: 1) to provide free basic dental care to people who cannot access private dental care; 2) to train students in delivering care to a population with needs different from those who regularly attend private dental offices; and 3) to support volunteerism with those who could not otherwise afford dental care. The populations who access dental services in the outreach program are the elderly, homeless people, street people, recent immigrants, the working poor and individuals with physical or psychological problems. Students are involved in the outreach program from the beginning of dental school. In the first two years, students work as assistants to the third and fourth-year students who perform the clinical work. The provision of dental care in the outreach program occurs both in community centres where mobile dental equipment is used and in the dental student clinic at MGH. Over the course of one academic year, 18 outreach clinics occur, 12 in community centres and six in the dental student clinic at MGH. In community centers, students perform

basic dental treatments and also refer patients to the dental student clinic at the MGH for more comprehensive treatments (www.mcgill.ca/dentistry).

Participants' characteristics

Key informants for this case study were all the 2010-2011 fourth-year McGill dental students (n=34). Following a purposeful sampling strategy, I invited 15 students to be interviewed. Specifically, these 15 students were identified using mixed purposeful sampling in which I combined typical case and convenience sampling strategies (Patton, 2002). In effect, these 15 students were first identified when I attended the outreach program sessions as part of the fieldwork (please see section 5.2. below).

Twelve out of the 15 pre-selected students accepted the invitation to be interviewed. Three students refused because they felt overwhelmed with exams and residency applications. Seven participants were women and five men. Ten were born in Canada, five in Quebec, and two were born in other countries but had immigrated to Canada. As for age, ten students were between 21 and 25 years old, one between 26 and 30 years old, and one between 31 and 35 years old. When asked to self-identify their families in terms of income, responses were: one student from low to middle income family, seven from middle-income families, three from middle to high income families, and one from a high-income family.

5.2. Methods of data generation

A criterion of quality in case study methodology is the use of multiples sources of data (Creswell, 2007). Accordingly, I used three sources of data, namely: interviews, on-site participant observation, and documental analysis. The main source of data was interviews. The use of these methods is described below, and is summarized in Table 1. Participant observation and interviews occurred simultaneously, which facilitated an in-depth understanding of *the case.*

Interviews

I chose semi-structured interviews as the main source of data. It has been well documented in the literature that interviews are the most widely used format for qualitative research, because they allow the interviewer to delve deeply into social and personal matters (DiCicco-Bloom & Crabtree, 2006). The strategy to invite dental students to be interviewed was to initiate collecting data from the on-site participant observation. I approached students during the outreach program, and after a short conversation about their experience in the outreach, I invited them to be interviewed. This face-to-face approach secured satisfactory levels of student involvement in the research project. Students were willing to participate.

I developed an initial interview guide primarily based on the research questions (Appendix D). Besides background information, the interview guide had four additional sections: 1) perceptions and attitudes toward poverty; 2) dental school training; 3) future plans; and 4) recommendations. I initiated the interview by presenting the 2008 Canadian poverty rates (Statistics Canada) and asking dental students' opinions about this situation and dental services available for people living with low incomes. This section was labelled "perceptions and attitudes of poverty". In sequence, I asked questions about their training at the McGill Faculty of Dentistry to work with low-income patients. I then followed up on this discussion by asking questions related to their future plans and intentions to work with low-income patients. Next, I asked if they had any recommendations to better address poverty issues in the context of the McGill dental school, and to enhance dental services to low-income patients in the outreach project. I also asked how the government could better address issues of poverty and access to dental care for low-income patients. In sum, 12 final year McGill dental students volunteered to participate in the study and were interviewed between November and December, 2010. The interviews were conducted at the McGill undergraduate teaching clinic at the MGH.

Interviews stopped when no more new information emerged from the interviews with students (i.e., data saturation). The semi-structured interviews lasted approximately 45 minutes and were audio

taped with the interviewees' permission. I transcribed all interviews verbatim with the support of the software Express Scribe.

Participant observation

I used on-site participant observation as a method of collecting data since I was interested in observing dental students' interactions and attitudes towards providing dental care to low-income patients. According to Bogdewic (1999) "if the focus of interest is how the activities and interaction of a setting give meaning to certain behaviours or beliefs, participant observation is the method of choice" (p.48). Accordingly, I chose to observe activities in the McGill Faculty of Dentistry outreach program, as it is integrated into the dental school curriculum and aims to provide assistance to low-income individuals while providing practice to dental students. The context of the outreach program provided an opportunity to observe students' spontaneous interactions with individuals with low incomes.

I observed four three-hour outreach sessions (for a total of 12 hours) between October and December 2010. Two sessions took place in community centres (Famijeunes and Sun Youth) where students used mobile dental equipment, and two sessions in the MGH student clinic. I felt welcomed by students, staff members, and demonstrators (dentists who volunteer in the program) during my visits to the outreach program. I guess being a dentist myself facilitated my acceptance in the field.

Patton (2009) indicates that "participant observation necessarily combines observing and informal interviewing" (p.287). Accordingly, in my visits to the outreach program, I observed dental students' interactions with patients and informally talked with them about their experiences in the outreach program. Usually, these conversations happened informally following clinical work after patients had left, and while students were packing and sterilizing dental materials. I asked open-ended questions mainly based on the experiences they had just had in the outreach program, such as: 1) How was the outreach today?; 2) Who was your patient?; and 3) What do they do for living?

I also had informal conversations with outreach staff members to understand how the program works, particularly patient recruitment and how they are referred from community centres to the McGill

student clinic. Detailed field notes about observations and informal conversations with participants were written down immediately after each participant observation session.

Document analysis

To complement the dataset and to contextualize poverty within the school's context, I performed a document analysis of the dental school curriculum by analyzing the information presented on the McGill Faculty of Dentistry website (http://www.mcgill.ca/dentistry/). This reading helped me to identify the faculty mission, and the courses related to poverty issues. It also helped me to contextualize the outreach program in the school agenda. Moreover, I included in the document analysis 10 one-page student essays written in the previous academic year, entitled "Personal reflection of Dental public health 1 course (DENT 305)". Through email communication, I asked all 34 students in the case to send the electronic version of their personal reflection by email; of the 34, I received 10 personal reflections. These essays accounted for dental students' reactions and feelings in undertaking a community project in different settings in Montreal. The intervention was focused on oral health promotion.

Table 1 – Sources of data

Sources of data	Description
On-site participant observation	Four outreach program sessions (12hs) from October to December 2010
Interviews	12 in depth one-to-one, and face-to-face interviews with final year dental students
Document analysis	McGill Faculty of Dentistry website 10 personal reflections from Dental Public Health 1 course (DENT 305)

Participatory component

The first advisory committee meeting for this research project took place before collecting data. The Canadian Institutes of Health Research (CIHR) recommends at a minimum including knowledge users in developing research questions, interpreting data, and disseminating results (Parry, Salsberg, & Macaulay, 2006). However, the timeline of a master's project leaves little room for developing research questions in collaboration with the advisory committee. After developing the research protocol, I hosted the first meeting in October 2010 with the advisory committee. In this meeting, I presented the research protocol that included a draft of the interview guide, and the methodological plan. The interaction among committee members was very positive given the short period of time in which to build a partnership.

The committee agreed with the importance of the research question and the methodology adopted. They suggested important changes in the interview guide to better address my research questions, and the inclusion of documents to be analysed. Furthermore, they proposed that I start data collection from actively observing the outreach program, and then invite students to be interviewed based on the observed interactions among the students and the patients. They suggested this approach to facilitate my understanding of the McGill dental school and the outreach program before conducting the interviews. In addition, they considered that a face-to-face invitation might increase the likelihood that students agree to be interviewed. I followed their suggestions, which indeed facilitated my insertion in the fieldwork. The committee also introduced me to outreach program clinicians and staff members, and recommended I book a meeting with the Dean and Academic Associate Dean of the Faculty of Dentistry to present an overview of the research. I then met the Dean of the Faculty of Dentistry to explain my research topic. He was very supportive and found the topic relevant, but suggested that I would face problems recruiting students to participate because they were busy with exams and residency applications. The Academic Associate Dean was also supportive. To help in the recruitment process, she suggested that I interview students during their lunch period and provided me a room at the McGill student clinic.

Ethical considerations

I conducted this investigation in concordance with research ethics principles. I obtained ethics approval from the McGill Ethics Review Board (IRB study number A09-B43-10B) prior to commencing the field work. I asked students to sign interview consent forms before starting the interview. Before having an informal conversation with one outreach staff member to better understand the program, I also asked her to sign a consent form. Moreover, students who agreed to provide me their personal reflection to include in the documental analysis also signed a consent form. Consent forms addressed free-will and respect for participants' privacy. All consent forms used in this project are in Appendix E (i.e., interview consent form, outreach staff member consent form, and document analysis consent form). Before initiating the fieldwork, I also obtained the support of the McGill Faculty of Dentistry Dean, academic associate Dean, and the outreach program director.

5.3. Data Analysis

I used thematic analysis as a main strategy to analyze the data. Thematic analysis has been defined as a method to describe, analyze, and report patterns in the data, which are also called themes (Braun & Clarke, 2006). Because the present investigation involves the use of a theoretical framework, I used a deductive/ inductive thematic analysis approach. The deductive component came from the *a priori* template of codes approach proposed by Crabtree and Miller (1999). In addition, I applied Braun and Clark's (2006) guidelines for performing thematic analyses to undertake this hybrid thematic analysis. I will now describe the phases of analysis.

Phase 1: Creating a deductive code manual – Following Crabtree and Miller's (1999) approach, I first produced an initial list of broad codes based on the research questions and Paulo Freire's theory of *conscientização*. For each code, I labelled and articulated a theoretical definition (based on the theoretical framework) and a working definition (based on the conceptual framework). I then named this

enhanced list of codes, the code manual. Table 2 provides an example of a code and its theoretical and working definitions. The complete code manual is displayed in Appendix F.

Table 2-Example of deductive code from the code manual

Label	Critical consciousness
Theoretical definition	Critical understanding of socio-economic and political conditions
Working definition	Dental students' critical understanding of socio-economic and political conditions of low-income individuals and the provision of dental care services to them.

Phase 2: Pilot-testing the deductive code manual – After producing the deductive code manual from Freire's theory with the main applications of the theoretical framework, my supervisor and I both independently coded one interview. We then resolved disagreements and adjusted the deductive code manual accordingly. This is a common practice to check for accuracy and the appropriateness of the codes (Miles & Huberman, 1994).

Phase 3: Coding the interviews using the deductive code manual – I then entered all codes from the deductive code manual into the software ATLAS.ti (version 6.2) and coded the remaining 11 verbatim transcriptions of the interviews. There were four code categories (consciousness, dialogue, education, praxis) with subsequent sub-codes (Appendix F). In this phase, I noted that different codes could be applied to a single quotation so that overlap occurred.

Phase 4: Sorting interviews segments and making the connections – Using ATLAS.ti software, I grouped all interview segments that I had previously assigned to each code. The output of this procedure

was a set of reports, each report containing all interview segments classified under the same code. This process helped to organize the data and to start finding meaningful patterns.

Phase 5: Seeking inductive codes within deductive codes – To perform the inductive thematic analysis, I distanced myself from the deductive codes expressed in the code manual. I then re-coded the set of reports to draw out new information and insights that were not immediately apparent from the deductive coding process (i.e., inductive approach). The results were codes that emerged from the data, and which were nested in the deductive codes.

Phase 6: Searching for themes – I then started to look at the meaning and relationships among codes. According to Braun and Clark (2006), "a theme captures something important about the data in relation to the research question, and represents some level of *patterned* response or meaning within data" (p. 82). The result was an initial thematic map from which the overarching themes started to emerge.

Phase 7: Reviewing and defining the themes – Before defining the themes, I engaged with my field notes from the participant observation (outreach program) and with my analysis of the documents (students' essays and school's website), to examine the extent to which they supported or opposed the interview findings. Bearing in my mind the research questions of this project, I then defined preliminary overarching themes to present to the advisory committee.

Participatory component

The second meeting of the advisory committee took place in April 2011 six months after the first meeting and during the data analysis period. At this meeting, I presented initial research results by using key interview quotations and the preliminary overarching themes. Overall, there were no substantial disagreements about the interpretation of the results. We discussed the proposed labels for the central themes and achieved a consensus that led to the final naming of the themes. The committee also discussed possible dissemination strategies such as presenting the results of the study to the McGill Faculty of Dentistry curriculum committee, which is in charge of curriculum adjustments.

Reflexivity in motion: My role as researcher

It is important to briefly explain the motivations and previous experiences that led me to conduct this research. I am a dentist who graduated in 2001 from the Federal University of Ceara in Brazil. All my previous professional experiences as a dentist were in Brazil, my home country. In Brazil, the health care system includes both a public universal component and a private component. As such, although private dentistry is widely accessed, dentistry is also part of the public universal health system. After graduation, I chose to work in the public health system in Brazil and, to be more prepared for this, I undertook a two-year residency program that focused on training health professionals to provide essential Family Health services in the poorest region of Brazil. This residency program is founded on Paulo Freire's theory of *conscientização*, and aims to educate primary health care providers by using Freire's concepts of *problem-posing* and *dialogue*. The course included discussions and action plans to deal with health inequalities. Therefore, Freire's approach to social justice became an inspiration to my further career development. After working as dentist in the public sector for five years, I became interested in health policy and worked with primary health care management, including dental care. I worked at the provincial and national levels focusing on enhancing quality of care and access to primary health care services.

I came to Canada as a Sauvé Scholar in 2008 (http://www.sauvescholars.org/). This scholarship program is based at McGill University and provided me the access to McGill courses and resources. Once in Canada, I became intrigued by many Canadians' acceptance of not having dental services fully covered by Medicare, especially after observing the poor oral health of underprivileged individuals in the streets of Montreal. Therefore, undertaking research focusing on health disparities and the role of dental education in preparing practitioners to address these issues evolved from my background in Freire's theory and my belief that access to dental care, as part of primary health care services, is a human right.

6. RESULTS

I derived a rich pool of ideas from dental students' interviews, their personal reflection of the DENT 305 course, and on-site participant observation in the outreach program. I identified five overarching themes through thematic analysis as follow: 1) perceptions of poverty; 2) the manifestation of poverty in the low-income patient; 3) perceptions of dental care services to low-income patients; 4) preparedness to work with low-income patients, and 5) future professional plans to address low-income populations. As previously noted, I mostly drew upon interviews to develop the themes, and used participant observation and students' essays to enrich and confirm these themes. I illustrated the themes by using the most significant quotations in the body of result section.

Theme 1: Perceptions of poverty

Participants perceived poverty differently. Perceptions ranged from being shocked with the absolute numbers, to viewing poverty as a complex and unavoidable problem, to viewing it as a society responsibility, or viewing it as an individual choice.

Many students felt astonished, surprised or shocked when exposed to the numbers of Canadians living below the poverty line. They recognized themselves as part of a privileged group in society and felt sheltered from those struggling with poverty. As noted by one of the students interviewed: "I think it is very easy to live in Montreal and not be aware of poverty… everyone is so segregated". Many students expressed living "in a bubble" (e.g., downtown Montreal, McGill campus) and thus felt desensitized from the overall social reality. It seems that the outreach program for many students was the only opportunity to reach out to lower-income neighbourhoods in Montreal:

> "It is a huge number; it is *surprising*[5] you saying those numbers – I didn't think it was that bad. I think that being in a big city like Montreal, I am a bit *sheltered* from that...I just don't see it on a daily basis. I guess I never stop to think about it; it doesn't cross my mind. We go to outreach and we see it there for one hour at the time, but I didn't have the idea that poverty was that prevalent in Canada."

To the majority of students, the problems surrounding poverty are a *responsibility of the society*. Poverty is seen as an unfair, sad and complex problem, and hard to deal with: "It is such a vast issue; it is difficult to just ask where to start, and correct it". Some students even expressed the feeling that poverty is unavoidable. The inexistence of poverty seems to be idealistic, as pointed out for one participant:

> "It seems it is very unfair but it is part of what we have grown accustomed to as being part of life. It would be nice to see less people living in poverty but poverty happens everywhere, happens in Canada, happens in the US…"

The belief that the relief of poverty is a duty of the government emerged during interviews, with different levels of criticism towards the way the government addresses the problem: "I think it is primarily a governmental responsibility, they need to advocate for these people". One student recognized the challenges to fight poverty, but expressed confidence in the government's actions to deal with it:

> "I am sure there have been many different ideas that our government and its social programs, have tried to put together to reverse and to target poverty, but for some reasons it seems to be that there will always be poverty…"

In contrast, another student posed that Canada should have eliminated poverty a long time ago. For this student, the government failed in addressing poverty "... given the way our system is set up, I

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[5] I used italic to emphasize important points along the interviews and different nuances in each theme.

don't feel it should be a problem in our society today. It is problem that should have been solved decades ago. I guess it is not been addressed adequately…"

The understanding of poverty as an *individual choice* emerged in a few interviews. As illustrated by the excerpt below, a few students argued that even though the government provides opportunities for those living in poverty to break the poverty circle, but that many of them waste those opportunities and opt for a lifestyle discordant with a profitable life:

> "Everyone chooses their path in life. It is a free country; you can do whatever you want. You can go to school: school is not expensive, and anybody can go. It is just a personal choice, the kid who runs away from home when he is sixteen, that is their choice. I have met kids that tell me they started taking drugs when they were fourteen years old, and they have been doing them for ten years. Now they are 24 and they have tried everything from crack, marijuana, to ecstasy – all kinds, and this is their personal choice. Obviously when you get into that life and that lifestyle, you can't have a good job, you can't make good money, and you can't have a nice house, have a nice car, or be able to have insurance. Obviously, everything is related. It all about personal choice, I find."

Theme 2: The manifestation of poverty in the low-income patient

Many participants, in addressing perceptions of poverty, brought up their impressions of the low-income patient. Given the level of response and amount of data on this topic, I decided to consider the manifestation of poverty in the low-income patient as one overarching theme in this thesis. In general, students' experience with low-income patients refers to the outreach program since they have no access to welfare recipients and the students' clinic clientele tend to present higher income status.

Dental students expressed a variety of views on low-income patients. Some presented a more *humanitarian view*, finding those patients more appreciative of receiving dental care, and sympathizing with their struggles. In contrast, a trend of *detachment* also appeared, and many students saw those individuals as *"difficult patients"*. Another recurrent perception of low-income patients focused on *dental negligence*, for which students presented various justifications

Several students expressed a feeling that patients of a lower SES visiting the outreach program are, in general, more appreciative of receiving dental care than patients who pay for services, as one participant expressed: "In general they are very thankful. They are more appreciative than my patients who pay for their service." Students associated that gratitude to the lack of dental services available for those with limited financial resources. "They don't receive as much care as the ones in the regular clinic, and it is mostly because of financial reasons. This is part of the reason that they sometimes appreciate more the work they received."

Various students expressed their humanitarian feelings towards patients living in poverty. One student wrote in his/her personal reflection about dental community-based experiences: "providing dental care for people in our community with the greatest need and least access is always satisfying and heart-warming." In the participant observation, at the end of an outreach session, many students expressed "feeling good for helping people who need dental care". They also felt treating people in the outreach was personally rewarding. In the interviews, many students showed an understanding of the challenges these patients face in daily life. One student, in reference to one outreach session in a community center that targets the provision of care for children, expressed: "The clinic was going on from 6pm to 9:30pm. These kids maybe should be in bed but their parents obviously knew it was important for them to receive dental care, and they were doing their best…"

Conversely, a few participants expressed an apparent attitude of detachment from the challenges that low-income patients face and described how this detachment affected their provision of dental care to them. I confirmed this detachment while doing the participant observation and informally asked a student about a patient she had just treated during a visit to an outreach session. The student could not tell any personal information about the patient besides dentistry related procedures, showing a lack of discussion between the student and the patient. Yet in the participant observation another student told me that she felt frustrated in the outreach because she was not able to perform advanced dental treatments with those patients, just basic dental care. This detached attitude was also exemplified when

an interviewee explained how she dealt with a patient who was not sensitized to the benefits of oral health prevention techniques. I use the quotation below to illustrate this detached attitude:

> "I do my best to try to convince them, and if they don't want to be convinced and they think, "oh, floss is stupid, I don't want to floss"… I respect their opinion, I have to do what I have to do as a professional *but the rest, it is not my problem anymore.*"

Another view of dental students about patients of lower SES, including welfare recipients, implied the assumption of those being "difficult patients". It seems that this belief is mainly based on second hand opinions they heard as dental students. Students reported the existence of rumours in dental school surrounding welfare patients: *"*I heard the *rumour* that welfare patients are typically the patients that do not show up for appointments, that will be late for appointments, and that take a lot of your time". Moreover, students heard that the fees for treating people on welfare were comparatively low and unfair given the amount of work that these patients generally require. The lack of adequately perceived financial compensation for dental treatments of these patients affected students' motivation, as one student expressed:

> "I can see why dentists always consider kicking the bucket and giving up, because you tend to go in a *circle of negativity*, "oh, I want to do that, but I don't have the money … I don't have the time, I have children to take care." Sometimes you feel *demoralized*."

To illustrate the contrast of the idea of the "difficult patient", students explained what is considered the ideal patient for a private dentist:

> "You want to start with a *good patient* who has insurance and has a screened mouth, and has relatively few problems and will be there for weeks. This is the *ideal patient* for a private practitioner."

Another recurrent student perception of low-income patients focused on dental negligence. For many participants, those patients have a reduced awareness of dental care, and tend to disregard their oral health. As one student stated: "It is a horrible generalization but I just think, in general, they don't perceive their teeth or their oral care as *being important* or something that is of *value* to them."

To justify those patients' attitudes, participants had different explanations. A couple of participants explained that those patients face many financial challenges in life, so dental care is not the priority. For these patients, basic means of survival come first:

> "They have to deal with figuring out where their next meal will come from…, trying to put a roof over their head, trying to put food on their table. Those are concerns that probably surpass all oral hygiene...*They have bigger concerns*. If they are not having any pain right now, their oral health is aside of other priorities…"

However, other students believed that if these patients prioritized their oral health and allocated their money wisely, they would be able to afford dental services. These students viewed the issue as a matter of investing in prevention instead of damage control. One student noted that these patients claimed no financial means to afford dental services, but spent money on other priorities:

> "They can't take care of their teeth and a lot of them smoke, which is amazing; they can't afford a lot of things but what is their priority? Smoking, drugs, alcohol! This is what I have seen with these patients"

Another explanation for neglecting oral health was fear of dentists. Students explained that many patients in outreach clinics had had no contact with dentists in over twenty to thirty years. According to them, this lack of regular visits to a dental office results not only in poor oral health, but also in high levels of anxiety and fear towards dental treatment. Various participants noted that these patients tended to postpone at maximum a visit to a dental office due to anxiety. The participants speculated that this fear of dentists came either from previous *traumatic* experiences or from *distrust in dentists*:

> "Sometimes they say, "I don't trust dentists for some reason." They generally have distrust in dentists. When we are students, they tell us these things because we are a kind of *proxy* of the real dentist, who may be more focused on income generation."

Other student participants offered yet another explanation for low-income patients' neglect of oral health: *cultural difference*. A few participants considered the myths surrounding oral health as barriers to care. For instance, students said some patients believed that tooth loss was normal due to

hereditary factors or pregnancy. One student exemplified the impact of these myths in patients seeking for dental care this way:

> "One of my native patients was convinced that he has soft teeth because his mouth is on fire, that there is heat coming from his mouth…They come with their own perceptions. *Because of cultural influence or religion*, he had a lot of missing teeth. I believe some were extracted given periodontal involvement, and he mentioned his dentist told him he needed these extracted because he had milk teeth, soft teeth. These are his words – the temperature in his mouth was higher than others and the heat in his mouth makes his teeth melt."

Theme 3: Perceptions of dental care service to low-income patients

Dental students presented varied opinions about the dental care low-income populations receive in Montreal. Overall, students considered the health system deficient with regards to dentistry. I noticed a general lack of knowledge about dental services offered to low-income populations in the majority of students. However, a few students were able to list some of the dental services offered to this population: coverage to general population (hospital-based), children under age of ten, welfare recipients, and the McGill outreach program. Students also thought individual actions were not enough; there is a need for a collective project involving dental associations to improve quality of dental services.

Unfair access to dental services within the health systems arose in many interviews. The expression "those who need more, have less access to services" was brought up several times. Participants explained that people living in poverty generally have more dental diseases; however, they have reduced access to dental services. Some students saw that as contradiction in the health system:

> "The way dentistry is, it is just *odd*, because the patients who have more coverage are the patients who have insurance, but they are the ones who really do not need as much treatment. So providers have to realize that those who have no financial means really need to have some sort of funding, some sort of way to find the treatments they need. So, for now it is not *fair*, it is *not logical* the way that the health care system works for Dentistry."

Some students proposed the solution of having more dental care services covered by Medicare, similarly to medical procedures, to provide more equitable dental care services in Canada: "Having

dentistry incorporated to Medicare would increase the quality of oral health of the entire Canadian population." Others participants went further by reflecting on the reasons and consequences of the limited Medicare coverage of dental care procedures. One student noted that the government considers dental care services as a financial burden to the health system. She viewed this perceived burden as the only explanation for not providing dental care to the working poor:

> "I think they see dental care as a *burden* on them and to the health care system, because why do they separate them? It is not fair that you can get, let's say, a health care provider for a heart exam, but you cannot get any dental exam. It doesn't make sense."

The idea of having limited dental services included in Medicare raised concerns from another student. He argued that a two-tiered dental system could lead to disparate service usage where wealthy people have access to comprehensive dental services and the poor only have access to basic services. He defended dental care as basic human right and not as a business:

> "I think everyone has the right to dental care and dental health, to proper oral health and to a dentist following them, but because the business aspect has been brought into Dentistry, it is very hard to have that."

Students generally demonstrated a lack of knowledge when discussing dental services covered in Quebec by RAMQ such as hospital-based care, service for children under the age of ten, and service for welfare recipients. Nevertheless, the ones who were aware of these programs also acknowledged that those programs were deficient and that there was a need to enhance the quality of those programs. One student even stated there is no access to dental care for the working poor because he did not consider dental services delivered in the hospitals to be *real* dental care:

> "They don't have access to care. They only do get care when they get so bad that they can show up in the emergency room at the hospital and we extract their teeth, but this is *not real dental care*, this is dealing with problems."

With regards to dental services to children under ten, one participant noted that sealants are not included among the procedures covered by RAMQ. According to this participant, sealants are a comparatively low-cost dental material in terms of public health, and considered effective to prevent

decays in permanent molars. For this participant, the exclusion of sealants in the list of procedures showed a lack of emphasis in prevention in that program.

With regards to the welfare program, participants expressed their views on the barriers those patients face to receiving dental care. Some students pointed out the problem that dentists decline to treat those patients for financial reasons, "Most private dentists want to have cream of the crop patients; they want to have the *best patients*, the patients that pay, with *optimal treatment*." Although the welfare program covers basic dental procedures, one participant's perception of these dental procedures covered by the welfare program was that sometimes do not cover patients' needs: "What justifies coverage for restorative work and not for periodontal work?" The coverage of periodontal treatments is limited in the welfare program in comparison with restorative treatments. However, many patients' needs rely on periodontal treatments, which makes the dental care coverage by the welfare program ineffective for many users.

In terms of dental service to low-income patients, participants generally recognized the outreach program as a great initiative for the provision of dental care services to those populations. However, many participants expressed criticism towards the organization of the program. One of these criticisms was the focus on decay treatments over periodontal treatments. Students compared their experience in the outreach program with their experiences in the student clinic, where they receive the main clinical training. Several students explained that in the student clinic there is a strong focus on periodontal disease, which is lacking in the outreach clinics. According to this student, in the student clinic they were taught to avoid supragingival cleanings[6] as initial treatment when patients have deep periodontal

[6] Supragingival cleanings: to remove tartar and plaque above the gum line.

pockets[7] to diminish risk of periodontal abscesses, but students go to the outreach program and perform these cleanings on patients with severe periodontal disease:

> "We are a school very heavily focused on periodontal treatments…but it seems to get lost in the outreach. We do go out in those community clinics, we provide a lot of exams and cleanings, which is great, but then we were told in our regular clinic here that if patients have PSR 3 or 4 not to do supragingival cleanings because we will just create periodontal abscesses. It is possible that we go to these outreach clinic and end up doing that. In some cases, we are actually making it worse, because it seems our outreach is all fillings based."

Several students reported that the outreach program is insufficient to address the demand for dental care for this population. They acknowledge that outreach is an important but insufficient initiative given the number of patients and the clinical complexity of individual needs. *Continuity and comprehensiveness of patient care* appeared as a major concern to many participants, as one student explained:

> "The thing is, we don't seem to follow up with them, we are not assigned to a patient like in our regular clinic … and treatment is not really about preventive care for them, it seems to be more a *patch up* of what is wrong. We try to treat only one of their main concerns."

A number of participants even questioned if the outreach program could be considered a dental care service due to its lack of continuity and comprehensiveness of care. One student expressed concerns about raising awareness to patients about their dental conditions and not being able to provide the dental treatment needed in follow-up appointments:

> "I just have the feeling that a lot of people we see are told to they need many fillings and are given a treatment plan for big fillings, but don't end up getting the work done, or don't end up getting all of the treatment done. So what are we doing then? We are raising awareness for them of the problem in their mouth, but we are not able to treat them. So, is that a service? I don't know."

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[7] Periodontal pockets: it is a result of disease progress, when the collar of gum becomes infected and detaches from the tooth - creating a space.

Echoing the same argument of absence of follow-up, another student questioned the outreach program's purpose of providing dental care services to disadvantaged communities: "Are we actually solving the problem, the cause of his cavities or we are there just to teach the students how to do cavity preparation?" Also in relation to the problem of absence of continuity of care to patients in the outreach program, one participant argued that given its limitation of funding and time, the program should emphasize prevention:

> "Maybe it would be better for the patients to come here, get fluorides, and learn how to brush their teeth and get free toothbrushes, rather than getting one filling when they may need 45. It is going to take 10 years to do all the fillings, but over those 10 years, the small cavities are now are enormous. Maybe we should focus more on education and teaching these patients why they are getting cavities, why they are in pain, or what they can do to avoid these problems."

In contrast, one participant felt a sense of accomplishment and felt less stressed about providing service in the outreach clinic, since another student would follow-up on the patient's treatment:

> "Because we don't have continuous treatment in the outreach, you feel like you do your job and the next person will continue: you kind of feel done. It is kind of like you accomplished your mission and the next person will continue."

Building upon this perception of deficient dental care programs to low-income populations, students argued that isolated individuals make no changes to the situation. There is a need for a collective project with dental associations to advocate for those populations at the governmental level, as one student stated: "I think dentists need to work together. I think that the Canadian Dental Association, the American Dental Association, different groups need to get together, work with schools, and really make a statement about it."

Theme 4: Preparedness to work with low-income patients

In terms of training to work with low-income populations, the majority of students felt well prepared to work with this population. Participants commonly agreed that a special clinical training is not necessary, but emphasized the need to be exposed to these patients, and to have communication skills.

Students said they discussed in lectures the problems that communities faced, but the main learning strategy of the Faculty of Dentistry towards these populations is the outreach program. For many of them, the outreach program is ideal because it provides interaction with those patients, and raises awareness about their needs. “I think the outreach program is where the learning takes place.”Another student stated in his personal reflection on community-based experiences how important he felt it was to have contact with those patients to learn how to deal with them:

> “In a private dental practice, it is far too simple to forget or disregard the background of our patients. It is by witnessing the tribulations that these teens face on a regular basis that we, as future dentists, can learn to better communicate with these individuals and contribute to the overall improvement of their health.”

For many participants, the outreach program provides the only exposure to low-income communities in their lives, which sensitizes them: “It leads you to leave your bubble and see what it is out there and, maybe you want to do it in the future. It makes you realize that not everybody is like you and there is a need.”

However, some students felt that the exposure to patients in financial need was insufficient. One student mentioned the U.S pipeline program as a reference to increase awareness of dental students towards socially disadvantaged communities. In this student’s opinion, the dental school curriculum lacks in terms of educating students about different populations, different needs, and how to interact with those populations. Furthermore, this student pointed out the importance of having diversity in dental school. “I found it very strange that there are no African Canadians in our program, no Hispanics, and I heard recently that one native Canadian was accepted into the program. I think we need to work on that.”

The dilemma of how to deal with patients who cannot afford dental treatments was discussed. Students expressed concerns about managing the whole financial aspect of running a dental office and treating patients who either cannot afford treatments or have welfare cards: “We know how to use our hands but we don’t know how to do the whole financial part.”

One participant criticized the strategy of teaching compassion in the first years of dental school. The student considered this education useless, and he stressed the need to increase dental students' interactions with low-income patients instead.

> "Students could learn what these people are doing, what they go through, what they deal with, because you get someone who comes from the upper/middle class and have no experience with people who go through hard financial times. I feel interacting with just those populations could be very interesting."

Students found, though, that simple exposure to these populations through the outreach program was not enough. Developing communication skills and having time to interact with them are essential in dental care education. Several students highlighted the importance of being a good communicator and speaking the patients' language, especially when explaining treatment plans: "I don't need a special training for that, but we should listen to them and trace our diagnoses and treatment plans based on their expectations."

In one of my visits to the outreach program, I observed one student explaining the dental procedure he was going to perform to the patient in very technical language. Afterwards, I asked the student if he thought the patient understood what he was explained. He said probably not. The need to speak a language that meets the patients' education level was also emphasized by students. They said dentistry has a technical language that should be adjusted to patients' understanding:

> "To deal with these populations correctly, you must talk at person's level and not talk above them. In professions like this one, there is a particular dialect. It is a professional language: it is a different language and you should not use this vocabulary when talking with patients."

Several students cited *communication* as one of the most important skills to pursue when speaking with patients. One participant felt that dental school put too much emphasis on marks as a measure of success, as opposed to communication skills:

> "If you can talk with somebody at their own level and relate to them as a person, it makes their decision way easier and they feel way more comfortable to do what they have to do… I think all the academic recognition it is really *marks-based*. I think there is not enough recognition or prizes for people who are very good at communicating with patients but that maybe do not have the best marks in the class."

The importance of communication skills became even more apparent when students gave examples of successful and frustrating experiences with low-income patients. Many students associated positive experiences in the outreach program with being able to establish solid communication with patients. One student, for example, reported an episode when a patient had enough trust in him/her to open up about his problems with alcohol. This disclosure provided an opportunity for health education to the patient, and a rewarding experience for the student:

> "We chatted and he opened up. He admits that he did have a problem with alcohol. I think it was a good experience for me, just to be able to get that out of him ... and I tried to teach him a bit and tell him why he has all these cavities, what the alcohol was doing to his teeth. I don't know if I changed his life in any way, but just to be able to inform him a bit about why he was having all these oral problems, *it was definitely good for me*."

Another student expressed satisfaction when a patient with a history of drug addiction opened up about the situation, and he/she was able to adjust the dental treatment in terms of medicines and anaesthesia. "I was really happy that he was honest with me. I did not judge him. I obviously felt bad that somebody my age was taking such a different path compared to me."

In another case, a student provided a good example of how communication could bridge different cultural understandings of dental diseases. In this example, a First Nations patient was trying to express his experience and his belief of having "milk teeth" giving off "heat from his mouth":

> "I don't want to tell him outright that his view is wrong, which is not true –it is how *he* perceives the disease. I say "there are many ways to understand what is happening, this is the way that they teach us, try to understand and let's see if the treatment works."

While some students reported positive experiences, many of them however related difficulties in communication and unsatisfactory experiences with low-income patients. One student related his

experience with a recent immigrant from India who was in pain because of dental diseases. When the student team tried to perform technical exams to diagnose the problem, the patient misunderstood and refused the treatment:

> "We tried to do the cold test, percussion test, heat test and I guess there was a communication barrier and she didn't understand what we were doing…So, when we were examining her, she was grabbing us and telling us to get away because she didn't understand…It was an extremely negative experience because the problem was obvious to us, but we couldn't communicate with the patient. It was definitely a *negative experience* for her and us."

Another student reported her experience with a "difficult patient" who was "not collaborative" during the procedures, and who ultimately disrupted the treatment when he was supposed to receive preventive care. This patient had a lot socio-financial problems such as unemployment and minor physical disability:

> "He seems really bitter about it. I tried to be understanding, but I think he just thought that I was a stupid girl who didn't understand his problem. He was really disrespectful to me." The same student reflected further on her experiences with low-income patients, and expressed that she felt a tension between students and those patients given their different backgrounds: "I think their perception of us is that we don't understand what they're going through because we never been there – and maybe it is partially true, maybe it is pretty true."

Moreover, another student told a story about an episode in the outreach clinic when a patient became upset for receiving an amalgam filling, assuming the material would be out of date. The student found it impossible to explain the advantages of this restorative material over others in a manner this patient could understand, and in the limited time that outreach clinics provide:

> "There are a lot of advantages but they may or may not understand, even if we try to explain. You can talk about compressed forces, about how they are more resistant. The outreach population usually has either high school education or even less, or maybe a language barrier. *There is no way to communicate through that*. They are used to colloquial language, and if you want to go for technical aspects you have to come up with creative ways that they can understand, which is not always easy when *you work with a limited amount of time*."

In addition to communications barriers, I found barriers related to limited time. Students claimed that there was a lack of time to interact with patients, and felt this could have an impact on their ability to communicate with patients. Many students spoke about limited time they had to interact with patients in the outreach program, and how this approach differed from the student clinic where they felt they had enough time to interact with patients. In observing the outreach program, I noticed an environment of rushing, as there is an intention to provide "as much dental care as possible" in that period of time. The limitation of time to provide care influenced students' perception of feeling connected to patients. As one student stated, "if I am meeting someone for the very first time and I have to get work done in a very short period of time, I am not going to know this person very well."Another student added:

> "It would be ideal if we could *build trust* but we just don't have time, because at outreach you are suppose to see two, three patients in a section and you are always pressured to pick up the speed. But this is different from the student clinic, for example."

One student described a common mood at the beginning of outreach clinics. In general, students are enthusiastic to "get as much work done as possible", because the outreach program might be the only opportunity for those patients to receive dental care treatments. However, she questioned whether this was the best approach: "We see the situation from a very technical perspective, but the patient might think: oh, why is this student rushing so much, why aren't they talking to me?" Moreover, the same student was aware that this approach could lead to a poor dentist-patient relationship. Achieving balance between learning about the patient and performing dental treatments during outreach clinics was considered a challenge:

> "One of the things they complain about, or even don't like about dentists is that they seem to be in rush. They just treat you for the teeth, kind of treating the tooth as opposed to treating the patient. But I find it very difficult to balance: how much time should you spend talking to your patient in the context of the outreach? – because you have a limited time to just get the dental work done."

One student even provided an example of the differences in approach he observed when he had time to interact with a patient in the outreach clinic:

> "It just happens to be during an outreach when a lot of patients cancelled. This is why we had a chance to just chat, which was kind of nice, just him and I. I was not stressed during the treatment knowing that I had another patient waiting. I could care more about him, and not just pull out his teeth."

Different suggestions came out from the interviews on ways to enhance the curriculum of the Faculty of Dentistry with regards to working with low-income communities. One participant argued the need to promote *cultural sensitivity*. Another student commented on the lack of knowledge on how to manage patients who were mentally or physically disabled.

Participants also highlighted the need to discuss the welfare program in depth. Elements warranting discussion for them included the flow of patients in the system and professional remuneration: "I don't know how the welfare program works, how much the dentist receives for treating these patients." Though there were lectures about the welfare patient, they did not know about how the program operates as a whole:

> "There is a huge population on welfare and I don't know what the protocol is, I just don't know. Maybe having lectures on welfare patients and how we should treat them properly, and about who pays us for their treatment? The government pays us a certain fee for the procedure we do? I just don't know."

Theme 5: Future professional plans to address low-income populations

The matter of providing dental care to low-income populations in students' future professional career emerged during the interviews. In general, students planned to address the need of these populations by volunteering in outreach programs and on international missions. They were unsure if they would treat welfare recipients in the future, and expressed concerns and reluctance to receiving those patients in their private clinics.

When asked if provision of dental care to low-income patients was a responsibility of dentistry, participants unanimously agreed. As noted by one of the students:

> "I think all dentists have a professional, moral, ethical obligation to promote oral health among all populations, people from this socioeconomic group, as far as I know, have less knowledge about the importance of oral health than people from more affluent backgrounds."

However, how best to address this responsibility, students found it difficult to answer. The majority of participants expressed their desire to volunteer to work with those populations. Although participants generally felt it was too early to make concrete career plans, many of them foresaw volunteering in outreach programs or on international missions, or providing services free of charge in their private dental offices. Some participants had more concrete ideas of how to volunteer than others did. This variety of ideas on how to volunteer are nicely illustrated in the excerpts below:

> "There are 30 dentists in the city and all of them pick one day in the week just to open their clinics after hours and see patients that maybe cannot afford treatments…That is one idea that definitely stuck in my head and is something that I would like to consider in the future."

> "I see myself working with them, but not for the most part. To tell you honestly, I see myself working in an office dedicated to middle class individuals, but I definitely want to go out and help people who wouldn't come to me on volunteer missions."

> "I will find a way to bring back to the community, it doesn't take too much time to go to schools and teach kids about dental health, to give information to parents."

> "I am not sure, but like for anyone who needs any treatment I will not say no, I will treat them."

The willingness to provide dental care to low-income patients (welfare recipients and working poor) in a private clinic was seen differently by the students. One participant, for example, felt that being flexible was an important way to address low-income patients' needs. One student demonstrated openness to find *alternative treatments* to patients in financial need:

> "This is how I deal with the problems they present: I will be very *flexible* and offer *alternative treatments* to the patient. Of course there is a certain limit of how much you can be flexible with the quality of care you provide, but I will try my best."

However, the willingness to adjust dental treatments in a private office was not widespread. Some did not want to change the service provided. "I want to provide the *best treatment* to my patients. If they want my treatment, they will pay my price – and if they don't, I don't want to do a *compromised treatment*."

Treating patients who cannot afford just any dental treatment was reported as a challenge by one participant. This participant was frustrated that he was not able to provide advanced procedures to patients who required them: "it is a shame to me, because I learned how to do all these advanced procedures, and I will not be allowed to do that. This is the only *shame* with working with welfare patients."

Concerns about providing care to both working poor patients and welfare recipients appeared. Students' concerns varied. According to one student, legal implications should be considered in deciding whether to provide free dental care to patients. These legal considerations could be a reason for dentists avoiding treating those patients."I really don't know if dentists are becoming afraid of losing money by treating these patients, or if they are more afraid of the legal implications that come about when treating these patients."

Another student worried about having patients who tend to miss appointments, *"*I don't want to run a practice where my patients do not show up. I want to avoid that. But it doesn't mean that because they are welfare patients, they will be bad patients.*"* Another concern discouraging students from seeing low-income patients in their private office was the urgency to generate income due to students' school debt:

> "I don't know if I will dedicate a large amount of my time to treating these patients and not making any money from it. It is not a matter of making money for myself – I have a lot of loans to pay. I am in debt now, and I want to make a living for myself."

Furthermore, to reach these patients appeared to be a big challenge for many students. A number of students considered being a specialist as a barrier to reaching low-income patients. Many students reported their preferences for having dental offices in middle income neighbourhoods, which would

decrease the chances of seeing those patients. One participant saw barriers to reaching low-income patients as insurmountable, “They have problems accessing us, and we have problems accessing them… there is no solution for the larger issue: when we finish our studies the majority of us will probably not see these kinds of patients.

7. DISCUSSION

7.1. Dental students and poverty

In this investigation, I aimed to explore how dental students in their final year at McGill University perceive poverty and the dental care provided to low-income individuals, and how these perceptions shape students' plan for their professional career. I also explored the extent to which dental students feel that their education in Dentistry has prepared them to work with low-income patients. This research revealed a spectrum of dental students' perceptions towards these issues, raising many challenges for dental education. It also confirmed that the time spent in dental school plays an important role in the way students will perceive and interact with low-income patients in the future.

Perceptions of dental students towards poverty

In general terms, students participating in this investigation perceived poverty as a sad, complex and unavoidable problem. For the majority, poverty was a societal responsibility, but for others it was rather an individual choice. Yet the majority also felt that it was a distant problem, difficult to relate to their personal experience. In general, they were unaware of the poverty rates in Canada, and when exposed to the figures of Canadians living below the poverty line during interviews, students expressed shock and a recognition that their experience was far from such a reality. Many students acknowledged being sheltered from that subject matter, and recognized being part of a privileged socio-economic class. The outreach program, for many of them, consisted of the first opportunity to interact with underserved communities. This distance located dental students and individuals living with a low income in two different "worlds", where priorities in life were dissimilar, and sometimes incomprehensible to one another.

In Freire's theory, these findings fitted with the concept of *naive consciousness*[8] because students perceived poverty to be a distant problem and tended to disregard its existence. The feeling that poverty was something far removed from the student's "world" prevented them from feeling included in the solution, leaving the responsibility of dealing with poverty to the government, and to the poor individuals themselves. These findings deserve the attention of dental education institutions. Dental students' lack of reflection upon poverty issues might hinder improvements in the dental care services offered to low-income populations, since they are important social actors. According to Freire, the education setting is a space to foster *dialogue* between dental students and underserved patients in an attempt to bridge these two "worlds" and promote oral health.

In addition, the WHO recently emphasized the need to address social determinants of health inequalities to effectively tackle health inequalities (Comission on Social Determinants of Health, 2008; Marmot, 2010; Marmot & Bell, 2011; Sheiham et al., 2011; Watt, 2007). This means understanding the social context ("causes of causes") where people develop certain behaviors that lead to poor dental care (e.g., deficient oral hygiene and high sugar intake) (Marmot, 2010). It is crucial for dental students to understand how social-economic factors such as unemployment, financial constraints, and low formal educational status affect people's access to dental care service and ultimately their oral health. This comprehension might prevent stereotypes and prejudices towards those patients. Therefore, it helps to establish a therapeutic alliance between dentists and their low-income patients and to promote oral health care (Loignon et al., 2010).

[8] Refer to the theoretical framework section for Freire's concepts definitions.

When attempting to discuss the problems surrounding poverty in broad terms (i.e. macro societal level), students brought up their impressions of low-income patients. This allusion to their actual experiences with disadvantaged patients, instead of the larger context of poverty as requested, in part reinforced students' difficulties with talking about poverty in a broader sense. However, the discussion about their experiences with low-income patients created an entry point for exploring students' views on poverty issues in more depth. In addition, these impressions were not homogeneous as I also identified a variety of dental students' views about low-income patients, which ranged from humanitarian perceptions of their struggles in life, to considering them as "difficult patients," and manifesting a certain degree of judgmental or detached attitudes.

The notion of dental negligence seemed to be central in students' perception of low-income patients, and it played an important role in students' understanding of low-income patients' lives. Students used what Freire calls *problem-posing* and elaborated many explanations about why those patients would tend to neglect their oral health and sometimes would not value their teeth. Each student's degree of *conscientização* shaped their explanations on why those patients tend to neglect their oral health. From a *naive consciousness* viewpoint, many students remained distant and judgmental about the reasons why these populations have precarious oral health. Conversely, other students stepped back from their own worldview in an effort to understand those patients' daily lives and priorities, as well as the social determinants of oral health care, thus demonstrating *critical consciousness*. The common belief that people living in low-income situations undervalue their oral care carries prejudice and stigmatization. Indeed, studies have already shown that less wealthy individuals still value their dental appearance, and often feel overwhelmed and powerless to deal with expensive treatments. They therefore end up viewing dental extraction as a solution and adapt to this reality (Bedos et al., 2003; Bedos et al., 2009).

With regard to the particular low-income subpopulation of welfare patients, dental students stated that, in general, they have no contact with them during dental school. Nevertheless, students' comments about those patients during the interviews revealed the assumption that they tend to be

"difficult patients". However, students' opinions are based on rumors they heard either in the academic setting or from outside dentists. These rumors generally consisted of a variety of perceptions of people receiving social assistance: that they are not reliable, that they tend to miss appointments, and that they tend to neglect their oral health. This finding should be a warning for the dental education community that dental students are already echoing senior dentists' perceptions of welfare patients (Bedos et al., 2006; Pegon-Machat et al., 2009). It is important that dental students have contact with people in the welfare program through a *dialogue* process*,* that they deconstruct preconceived ideas and that they develop their own opinions towards these patients. This could improve students' critical awareness of welfare patients' social reality ("reading the world") and foster both *critical consciousness* and personal engagement (i.e., *conscientização*) with the challenges that welfare patients are facing to attain oral health.

Dental students' perceptions of the dental care provided to low-income individuals

Another research finding relates to students' perceptions of dental care services offered to low-income patients. In this regard, students considered the Canadian public dental care system as unfair to low-income populations because it fails to provide full access and comprehensive services to those individuals. They acknowledged that low-income patients are the ones who need dental care the most, but have the least coverage (Leake, 2006; Yalnizyan & Aslanyan, 2011). Moreover, they also questioned the limited dental service coverage in comparison with medical coverage in Medicare. Although students did not elaborate concrete solutions to fix the problem, they questioned (*problem-posing*) the limited coverage of dental care services, the structure of existing public dental care services, and the increased burden of dental diseases on low-income communities. This is already a significant step towards *conscientização* that should be further developed in dental school. Others studies in North America have also found that dental students believe that society is responsible for providing basic oral health care to all, independently of people's ability to pay (Holtzman & Seirawan, 2009; Okwuje et al., 2009).

Dental education training to work with low-income populations

Students expressed almost unanimously that they felt well prepared to provide dental care to low-income patients. They commonly agreed that a special clinical training is not necessary, but highlighted the importance of being exposed to those individuals (such as in the outreach program) and pursuing adequate communications skills to interact with them. Despite the fact that dental students felt prepared to care for this population, their answers still testified to some of the challenges that they faced when working with low-income patients. Throughout the analysis of interviews, I noticed that students associated successful experiences with low-income patients with the ability to engage in effective communication. Conversely, frustrating experiences with low-income patients were linked with failure to establish communication. Students explained this failure in communication in different ways; they considered language and cultural barriers, a lack of communication skills, and sometimes the patients' "negative" attitudes.

Loignon et al (2010) showed that dentists who develop a humanitarian approach to providing dental care to underserved communities not only invest more time building the relationship with their patients, they also try to understand patients' socio-economic and familial context, are more aware of cultural factors that might interfere with dental treatment, and negotiate the best treatment option according to patients' needs and expectations. These attitudes are related to communication skills and meet Freire's concept of *dialogue* and therefore should be encouraged in dental school during community dental education programs. Communication about these problems and their context not only helps the dental students progress in their learning, but it also helps dental patients as well, as he or she engages with and understands the issues that have led to poor oral health.

Another important finding of this research at the educational level is student's lack of knowledge about the overall functioning of the dental services included in the public health care system, especially as it concerns welfare recipients. As Haden et al. (2003) notes, the education experience should include learning about public health and health care delivery. Several aspects of the public dental care system should be better discussed, including the welfare program and the provision of dental care to its

recipients, the flow of these patients in the system, and professional remuneration for their care. As noted previously, this lack of information from dental school leads the students to build their opinions on rumors about these patients and the current system, and therefore contributes to increasing the distance between future dentists and those patients. Furthermore, it might negatively affect students' plans to provide dental care to them in the future.

The outreach program is, to many students, the only opportunity to interact with low-income communities. The outreach program emerged both as a type of dental service offered to those communities and as an educational strategy to train students to provide dental care to them. These findings are in accordance to the outreach goals (McGill website). In terms of education, students perceived the McGill outreach program as an opportunity to be exposed to these patients, and therefore to learn how to interact and provide dental care to low-income communities. Community-based education programs are recognized strategies to raise awareness and to train students to work with underserved communities (Davidson et al., 2009; Kuthy et al., 2007; Kuthy et al., 2005; McQuistan et al., 2008). However, students were extremely critical about the outreach program as a dental service. The lack of continuity of care and the emphasis on dental cavity treatment in the outreach program led students to wonder whether it should even be considered a dental service (*problem-posing)*. Moreover, the environment was rushed in the outreach, which aimed at treating as many patients as possible, thus not allowing students to establish satisfactory interaction with their patients. Although there is demand from underserved communities for dental services, the outreach program is also an education strategy and should provide an adequate space to interact with low-income patients, to understand their lives better, and thus to develop a *critical consciousness* about their issues.

It is important to look at Freire's concept of *praxis*, where theory dictates action and the two are in sync. In this respect, it is important to critically reflect upon the goals of community-based practices such as outreach programs in dental education. What do dental schools really want students to learn from these practices? If they are educational strategies to sensitize and stimulate students to tackle oral health inequalities, they must be coherent with the university's clinical principles, and allow solid

interaction between patients and students. However, these research findings identified a clear contradiction between what is taught in periodontal classes and what is performed in the program. Freire points out that the learning process must be collaborative and guided by a dynamic *dialogue* among all actors involved. If there are limitations in the outreach program (e.g., limited resources) that hinder appropriate clinical care, these should be explicitly discussed in a *dialogue* with students. This approach may enhance students' *critical consciousness* and thus they may feel part of both the educational and the service component of the outreach program. By demonstrating dissociation between reflection and practice (*verbalism* or *activism*), dental school may send wrong signals to students who in turn may realize the existence of two different types of clinical care based on patients' income.

As per Freire's concepts of *conscientização*, the outreach program should go beyond providing services to low-income patients; training students to treat them; and supporting voluntarism (McGill website). It could also help to construct *critical consciousness* of low-income patients' socioeconomic conditions and foster students (and the broader academic community) to engage in actions that reverse existing oral health inequalities.

Dental students' future plans to address low-income populations' needs

This research also found that dental students unanimously and emphatically agree that it is the role of dentists to promote oral health to low-income patients. However, when asked how they plan to do that in the future, the answers were vague and converged to volunteer work outside their own dental office. Davidson et al (2009) also showed that students' future career plans do not involve providing dental care to disadvantaged communities. Students raised concerns about treating those patients in their own dental office in the future, namely the legal implications of providing free, non cutting-edge dental treatments, a reluctance to perform "compromised" dental treatments due to patients' financial constraints, concerns about patients missing appointments, and their own urgency to earn an income given their school debt. Moreover, students foresaw difficulty in reaching those patients since they had no plan to set up a dental office in low-income neighborhoods.

Here the concept of *verbalism* (i.e., critical reflection without action to affect change) applies as students reflected about the dental profession and emphatically agreed that the provision of dental care to the underserved represents an important role for the profession, but students struggled with connecting reflection and action in foreseeing their future career. Moreover, the emphasis on volunteer work as a means to fulfill this role and provide care to low-income communities demonstrates students' difficulties in envisioning other long-term solutions. For example, none of the students proposed addressing these problems by engaging in dental health policy making through dental associations or the government. This dearth of ideas and low perspective of personal engagement with what students saw as an ethical duty of dentistry indicates an incipient *conscientização* of alternatives to address the oral health of low-income population in dental school.

In addition, the notion of "compromised" treatment (i.e., treatment far from ideal according to students' perceptions) appeared often in students' lexicon and it is critical in understanding their unwillingness to work with underserved communities in the future. Although one student referred to this type of adaptive treatment as "alternative" treatment and spoke positively about performing it, the majority of students always aimed to provide the "best" treatment for their patients. In this context, patients who cannot afford the "best" treatments receive "compromised" treatments, and therefore are excluded from the students' future clientele. Using Freire's concepts of *critical consciousness* and *dialogue* also help to understand treatment adjusted to patients' reality. Graham's (2006) concurs that warning dental students that there are no ideal treatments, but dental treatment plan adjusted to patients' needs and affordability tends to foster more positive attitudes towards disadvantaged patients. It is important to be aware of the connotations attached to the words that are used in dental school.

To summarize, this case study showed a variety of dental students' perceptions about people living in poverty and the dental care services offered to them. Several students questioned (*problem-posing)* the challenges of developing a more socially just dental system, while others simply accepted the structure of public dental services without questioning their impact on oral health inequalities. This

shows what Freire calls the ever-evolving process of *conscientização* of human beings, and raises important points that deserve attention from the dental education community.

Dental students perceived poverty as a sad, complex, and unavoidable problem. They felt that poverty was either a societal responsibility or an individual responsibility, and therefore did not feel part of the solution. Overall they perceived low-income patients as negligent of their dental health and provided different explanations for that: (1) a focus on other basic needs given limited economic means, (2) problems with drugs and alcohol use, (3) cultural barriers, and (4) distrust of dentists. Students had no contact with welfare recipients and their opinions about them were based on rumors that those patients tend to be "difficult". They perceived the public dental services as unfair and deficient to address low-income populations' needs, but they lacked ideas to improve them. In terms of education, students demonstrated a lack of knowledge about the dental services included in the public health care system, especially as it concerns the welfare program. Moreover, students perceived the outreach program as valuable in exposing them to low-income patients, but questioned its function as a dental service. The main problems in the outreach program noted by students were the lack of time to interact with patients, the emphasis on cavities procedures, and the lack of continuity of care. They also associated successful/frustrating experiences with their ability to communicate with those patients. Finally, students were uncertain if they would work with low-income patients in the future in their dental offices. Many of them foresaw only volunteer work such as outreach programs as a means to address the needs of low-income communities.

Using Freire's lens, students demonstrated mostly a *naïve consciousness* and a limited capacity to establish *dialogue*. Students also showed certain dissociation between reflection and action (*verbalism* in some cases and *activism* in others) regarding their views of poverty, their role in improving dental care in Canada, the education they received in dental school and their future career plan as dentists. Despite this rather minimal *critical consciousness* on the topic, many students were able to raise questions (*problem-posing)* about various above mentioned issues. Overall, dental students only exhibited very incipient *conscientização* about poverty-related themes and their role as social changers.

7.2. Study contributions

This investigation contributes in several ways to both theory and practice in dental education. First of all, this study brought a new perspective to this area of research. To our knowledge this is the first empirical research to explore dental students' views on poverty. This work provides an in-depth picture of dental students' perceptions towards low-income patients and the challenge that providing dental care to them represents. Important findings of this research include the following key points: (1) dental students perceived low-income patients as negligent of their dental health, (2) the McGill dentistry outreach program faces many challenges that should be addressed in order to be more educative, and (3) students lack knowledge about the public dental services, especially the welfare program.

Second, this work also innovated methodologically. In a research context dominated by quantitative methodological approaches (as revealed by the comprehensive literature review performed for this thesis), the adoption of an in-depth qualitative case study research design provided a deep and nuanced understanding of how dental students perceive patients living in low-income situations. The use of a qualitative case study research strategy and data source triangulation (Stake, 1995) allowed a thorough investigation of many issues surrounding students' views of poverty, and a more in-depth exploration than would have been possible with a quantitative research design. Moreover, Freire's critical and social constructivist theory has been scarcely used in health professional education. This study shows an application of Freire's ideas of *conscientização* in the context of dental education and oral health inequalities. This research shows that Freire's social justice theory represents another avenue to address health inequalities through the education of health professionals.

Third, to our knowledge this is the first qualitative research on dental students' views about oral health inequalities that uses a participatory approach. The participatory approach embodied by the advisory committee improved many aspects of the research: the acceptance of the research by the community of the Faculty of Dentistry and its outreach program; the research strategy (e.g., starting data collection by observing the outreach program and then interviewing the students, which facilitated

participants recruitment); the research methods (e.g., improvements in the interview guideline and suggestions of documents for document analysis); the interpretation of the data; and the beginning of the plan for the dissemination of results. The major contribution of using a participatory approach was to engage various stakeholders (i.e., Faculty members and student alumni), thus making the research processes and findings more applicable to dental education needs.

Finally, the results of this investigation have the potential to make practical contributions in dental education. More specifically the study enlightened the debate about educational strategies to better address health inequalities in dental schools. In this sense, I made several recommendations that may support the curriculum development in the McGill Faculty of Dentistry and in other dental institutions that share a commitment to social justice and human dignity, as follows:

***To reformulate the outreach program in order to enhance student-patient relationship and the provision of comprehensive dental care to low-income patients -** This study revealed deficiencies in the outreach program in its dental care services provision role --lack of continuity of care and deficient compliance with clinic guidelines. This study also revealed a strong student complaint regarding the outreach program not providing an opportunity for meaningful student-patient relationship, which compromises the outreach's educational role. Therefore, it is imperative to redesign the outreach program to guarantee the provision of adequate services and its educational role in training students to serve disadvantaged communities.

***To increase the opportunities for dental students to interact and provide dental care to welfare recipients -** Enhanced student-welfare patient interaction during dental school would help students to better understand these patients' struggles in life, to contextualize oral-health related behaviours, and avoid stereotypes. This approach might increase the likelihood that students welcome welfare patients in their future dental practice.

***To ensure students know how the dental delivery system works, including dental services to welfare patients** - This investigation showed that senior dental students were unaware of the guidelines

to offer dental services to people on welfare in a private dental office. This lack of information leads to rumors and prejudices against people on welfare, and might contribute to students' reluctance to treat those patients in the future.

***To promote the debate and dialogue on strategies other than volunteering to address oral health inequalities at clinical, systemic and societal levels -** This study showed that dental students faced a dearth of ideas on alternatives to address low-income patients' oral health needs (they only considered volunteer work as a solution). It is important to discuss with students that leadership and participation in dental associations, non-governmental organizations, and the government are also important ways to promote social justice in dentistry.

7.3. Study limitations

The first limitation of this study is related to scope of participant observation. I observed only four sessions of outreach program due to time limitations. Moreover, many patients in the outreach spoke French, and since I do not speak French my observations of student-patient interactions were limited. Nevertheless, I was able to capture many aspects of the outreach program that were important for this research.

A second limitation concerns the inclusion of ten students' essays out of 34 for the document analysis. As this method of data generation was complementary and used to confirm the interviews findings, the small number of students' essays did not compromise the results.

A final limitation refers to the exclusion of low-income patients or poverty organizations in the advisory committee of the participatory component. I acknowledge the importance of involving all beneficiaries of research in a participatory approach. In this case, the low-income patients and/or poverty organizations would have enriched this case study by presenting another view on dental education and dental services. These social actors were not included in this project due to the time and financial limitations involved in carrying out a masters' thesis. However, the adoption of a participatory

component in this project provided me with valuable knowledge to develop and widen the partnership in future investigations.

7.4. Directions for future research

This research uses the case of dentistry to bring together two prominent issues: health inequalities and health professional education. One avenue for future research might be to use Freire's theory to shed light on how health inequalities have been addressed in other health professional education settings.

Others investigations should be carried out in dental education to address oral health inequalities in North America and others health care systems. The use of a variety of methodologies and research designs, including qualitative research and participatory approaches, is also appropriate in this field. In fact, this topic has the potential to benefit from other research using a fully participatory approach, involving low-income patients and organisations dealing with poverty to develop strategies to inform curriculum changes covering oral health inequalities.

In addition, longitudinal studies might show the impact of dental education on students' perceptions of poverty throughout dental school. It would also be appropriate to carry out other qualitative studies focusing specifically on the extent to which dental community-based programs prepare students to work with disadvantaged communities. Our study found many gaps in the McGill outreach program that did not help students to really interact and thus understand people living in poverty and their oral health behaviours.

Studies could also explore the perceptions of the academic community of Dentistry on poverty and oral health inequalities. It is important to understand how they perceive the burden of oral health inequalities on disadvantaged communities and the role of dental education in combating them. This understanding would support the development of strategies to engage all the academic community in promoting a more socially conscious education setting.

7.5. Knowledge Translation Plan

My goal is to disseminate the results of this research to as many different audiences as possible. I adopted a participatory approach which made this an integrated knowledge translation research (IKT). IKT and participatory research overlap since both rely on a partnered approach to research involving researchers working with knowledge users throughout the research process (Parry et al., 2006). Both participatory research and IKT have similar goals: participatory research aims to use research to effect change (Green et al., 1995) and IKT also involves both the production of knowledge and its application (Graham et al., 2006).

For this research the knowledge users on the advisory board were dental graduates and faculty members from the Faculty of Dentistry. In this research, I made joint decisions with the advisory committee on finalizing the research questions, data collection, interpretation of the study findings, and preliminary strategies to disseminate the research findings. I will follow the guidelines of Canadian Institutes of Health Research (CIHR) to plan the dissemination of this study results (Graham & Grimshaw, n.d.). This guideline claims that the results of a study could be shared through different strategies as follows: (1) diffusion - passive diffusion though journal articles and lectures may increase knowledge but often does not result in changing behaviour; (2) dissemination - more active strategy that targets individuals and organizations with shared interests; and (3) implementation - active strategy that aim to encourage adoption of results. This is a preliminary dissemination plan that will be fully discussed with the advisory committee

Diffusion: I plan to present this work at conferences in the fields of dental public health, health inequalities, and to publish in a peer-reviewed journal in dentistry in order to reach many different audiences. In addition, I have already been invited to present the results of this study and the challenges of performing a participatory project within a Master's thesis timeline at a seminar of Participatory Research at McGill (PRAM) in February 2012. I will also contact the Paulo and Nita Freire Institute at McGill to suggest a presentation of this study.

Dissemination: I will offer to present the results of this study to McGill dental students in all years of dental school. Moreover, I plan to build on the already existing partnership between McGill Faculty of Dentistry and the Quebec Anti-Poverty Coalition. To do this I will contact the leader of the organization and ask if they would like to have a presentation regarding poverty and dental care services and what they would like to hear on that occasion. Moreover**,** I plan to facilitate a discussion about the role of dental education in diminishing oral health inequalities based on the results of this study in the Oral Health & Society Division of the Faculty. This is a small group of faculty members and graduate students interested in oral health inequalities and therefore an appropriate entry point to disseminate the results of this study at McGill Dentistry community. In this occasion, I will ask the members of the advisory committee if they can make sure that the Dean and Associate Dean of McGill Faculty of Dentistry will also be present. At all times I will also be open to accepting any other opportunities that present themselves.

Implementation: The advisory committee has already invited me to present the results of this study at the McGill Faculty of Dentistry Curriculum development meeting.

8. CONCLUDING REMARKS

The aim of this study was to explore dental students' perceptions and attitudes towards poverty and the dental care offered to low-income patients. This study also addressed the students' views of their training to work with low-income communities and their plans to include these communities in their future practice.

This investigation showed that dental students perceive poverty as a distant subject, which is the responsibility of the government or of the poor individuals themselves. Students found the dental health system in Canada to be unfair to people living in poverty, but were not able to envision strategies to ameliorate it. In terms of training to work with low-income populations, this investigation showed the importance of reflecting upon the function of Dentistry outreach programs. Students highlighted many challenges to be addressed in the outreach program to make it more educative. For example, the insufficient time in the outreach clinics and the lack of patients' continuity of care were mentioned as barriers to allow effective student-patient interaction. This study also showed the need to promote more awareness of public dental services and policies. Students demonstrated a lack of knowledge about dental public health policies, especially concerning the welfare program. In terms of future plans to address low-income communities' oral health needs, this investigation showed that students struggled to envision other ways to address those communities' needs, besides volunteer work.

The use of qualitative research and Freire's theoretical framework of *conscientização* provided a deep exploration and understanding of dental students' views, attitudes, experiences, and future professional plans regarding the treatment of low-income populations. The participatory approach used in this research increases the chance that the knowledge produced will be translated into action and will enhance the dental education of future dentists on oral health inequalities. Reducing oral health inequalities is a matter of social justice, and dental care providers are key social actors in this endeavour. It is extremely important that dental education institutions invest in educating more socially conscious dentists. Through *dialogue* and a more critical educational process, future dentists might critically reflect

on their practices and the dental care system to address oral health inequalities, which includes not only providing dental care to low-income patients, but also taking the leadership to improve dental care programs for these individuals.

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APPENDICES

Appendix A: Search strategy*

Search terms	MEDLINE	EMBASE	CINAHL	LILACS
1.Students,Dental/px [Psychology]	666	679	635	250
2. Dentists/px [Psychology]	1343	1356	181	620
3. Education, Dental/	11277	11357	1099	496
4. 1 or 2 or 3	12856	12954	1652	1292
5. "Attitude of Health Personnel"/ MH "Dentist Attitudes" **	73388	74691	16538	445

6. Attitude/	34512	34380	6903	271
7. Health Knowledge, Attitudes, Practice/	47572	49175	222	1916
8. Poverty/	20232	20650	10937	1749
9. Social Perception/	12916	13158	55	262
10. Low income.mp***	10748	11140	5190	1760
11. Medically Underserved Area/	4374	4477	2036	32
12. Health Services Accessibility/	36106	37018	30046	1069
13. 5 or 6 or 7 or 9	158008	161258	23589	2822
14. 8 or 10 or 11 or 12	63749	65351	43409	2794

15. 4 and 13 and 14	68	71	24	1
TOTAL	75	71	24	1

* ERIC search strategy is described separately of the table because this database provides no numbers of papers along the search strategy.

Search Strategy to ERIC database: Query: (DE=("attitudes" or "social attitudes" or "student attitudes")) and((DE="dentistry") or(KW=(dental student*)) or(KW=dentist*) or(KW=dental*)) and((DE=("low income groups" or "poverty")) or(KW=(low income))

**In CINAHL “Attitude of Health Personnel” was not available, and it was replaced by “Dentist Attitudes”.

***The search was based on MeSH, and only one keyword was used "low income."

Appendix B: Selected papers

Authors/year of publication (country)	**Aim of study**	**Study design**	**Participants**	**Findings**
Davidson P. L. et al, 2009 (USA)	To examine practice plans of graduating dental school seniors to providing care to underserved patients	Survey (data from annual ADEA survey of dental school seniors 2003)	Multiple stakeholders, faculty members, and **fourth year dental students** from all Dental school in USA	* 43% of students reported that school informs "not well or not very well" opportunities to practice in settings that provide care to underserved areas. *Pipeline program did not have short term impact (5 years) on students' practice plans to provide care to underserved

Okwuje I. et al, 2009 (USA)	To seek information about dental students career plan	ADEA survey 2008	All Dental school in USA	* 70% of senior dental students felt ensuring and providing care to all segments of society is an ethical and professional obligation. * 70% believe that access oral health is a major problem in USA. * 60% agreed that basic oral health should be provided regardless of ability to pay
Smith C. S. et al, 2006 (USA)	To explore the impact of dental education on dental students' attitudes and intentions to treat underserved patients	Cross-sectional survey	Students enrolled in one academic year, and alumni (University of Michigan)	* 50% of dental students planned to treat patients from all socioeconomic background * 71,4% agreed that they will use their abilities to address

				community needs. * 68,6% said the their dental school prepared them well to treat patients from socioeconomically disadvantaged background *28% increase their interest in caring for sociodisadvantage patients after extramural experience *16% affirms extramural experience have influence their practice plan
Kuthy, R. et al, 2005	To analyze senior dental students' perceptions prior to	Cross-sectional survey	Senior dental students	*Students expressed a greater willingness to treat vulnerable population if they had previous

(USA)	extramural rotations for comfort and future willingness to treat patients from vulnerable groups			experience
Kuthy R. A. et al, 2007 (USA)	To analyze dental students 'perception of comfort in treating selected special needs groups after completion of community- based assignments	Cross-sectional survey	Senior dental students from University of Iowa over 13 year period (723 participants)	* High level of student comfort in treating low-income patients after the community-based experience (96.5%). 55.7% willing to continue treating these patients in the future * Educational community programs have been favorable towards
Davidson P. L. et al, 2007	To analyze dental school senior students' plans to	Survey (ADEA annual survey	All Dental school in USA	*Community based education predicts plan to care for

(USA)	provide care to underserved	of dental school seniors 2003)		underserved upon graduation
Holtzman, J. S. et al, 2009 (USA)	To explore freshman dental students attitudes toward access to dental care, society's and health professionals' responsibilities to care for underserved areas	Longitudinal survey	Freshman dental students (University of Southern California School)	*Students affirm society is responsible for providing dental care for underserved communities, but they were unclear how to do that.
Habibian, M., et al, 2010 (USA)	To investigate the attitudes of dental students toward the homeless population	Cross-sectional survey	Dental students	*Rotations help students (79%) understand the needs of underserved, and make them more comfortable treating those patients

	before and after rotations			(85%)
Carreon, D., et al, 2011 (USA)	To examine factors associate with graduating dental students' altruistic attitudes	Survey (data from ADEA 2007)	Senior dental students	*Students from low income families were more likely to express altruism attitudes *Students with altruism attitudes attend school with social context more respectful to diversity

Appendix C: Public health related courses

Year 1

DENT 101J1-Dentistry Apprenticeships 1 (0.666 credit).

Guiding and mentoring students in their transition from laypeople to dentists, promoting professionalism, patient-centred approach, and self-reflection

Year 2

DENT 201 Dentistry Apprenticeships 2 (1 credit)

Guiding and mentoring students in their transition from laypeople to dentists, promoting professionalism, patient-centred approach, and self-reflection

DENT 205D1 Dental Public Health 1 (1.5 credits)

Principles of public health, behavioural sciences, communication skills, ethical and legal issues relevant to clinical practice, including health education and health promotion, disease prevention, epidemiology and biostatistics, healthcare systems, access to care and evidence-based health care.

Year 3

DENT 305J1Dental Public Health 2 (1 credit)

Oral health promotion in the community, dentist-patient relationship and communication with an emphasis on the needs of underserved populations.

DENT 313 Community Clinics (1 credit)

Introduction to a variety of mobile dental delivery systems and instruction as to the merits of each system. This course will allow students to demonstrate their knowledge in oral medicine, prevention, operative dentistry, and treatment planning.

Appendix D: Initial Interview guide

Introduction

Interview date: _____

Name: _____

Thank you for taking the time to meet me today. I am Clarice Reis, a Masters candidate in Experimental Medicine/ Family Medicine option program at McGill University. I would like to learn your perceptions and experiences as a Dental student working with low-income patients. The interview should take approximately 45 minutes. To ensure I report appropriately your interview, I would like to request your permission to take notes and audio-record this interview. Your responses will be kept confidential that is, all information you share will not be linked to your name. Please remember that you may end the interview at any time. Before we start, I would like to request you to read carefully the consent form. Please feel free to ask any question that you may have. If you agree to participate, please sign the consent form.

Time allocated to participant to read and sign the consent form

1) Perceptions and attitudes about poverty

Firstly, I would like to know your opinion about the following comment:

Although Canada is one of the richest countries in the world, around 14% of children live below poverty line in Canada. One in nine Canadian children, more than a million, lives below the poverty line according to the 2008 Report Card on Child and Family Poverty in Canada.

What do you think about that?

What do you think about the dental care provided to low-income patients?

What kind of clientele/ patients/populations have you been caring as dental student? Could you describe those patients in terms of socio-economic background? (probes: Are they part of groups? For example? How about the outreach patients?)

What kind of dental problems those population present?

What kind of experiences have you had with those patients? What was your feeling/sensation when you had faced those experiences? Focusing on low-income patients, what kind of experience come to your mind? (probes: Positive? Negative? Could you describe them? Where and when they had happened?)

How do you feel treating low-income patients? Dou you feel any kind of emotions after an encounter with those patients? Any difference from others?

2) Dental school trainning

What kind of information/ training did you have during dental school that supports you to work with low-income patients? (Probes: Lectures? Rotations? How about the outreach program? Could you describe them? Where and when in the course timeline?)

Have you received advice how to approach or deal with low-income patients? Have you learn something from instructors/professors?

Do you feel well-prepared/ confident to deal with low-income patients? Why?

3) Future plans

In terms of future, can you describe the picture of your desired professional life? Where?

Do you think as a dentist you have any role in promoting oral health for low-income patients?

4) Recommendations

We are reaching the end of the interview. Based on our conversation, do you have any recommendation to improve dental care to low-income individuals to:

Dental school

McGill Outreach program

the Government

5) Background section

Gender:

Male

Female

Age:

20-25/

25-30/

30-35 /

More than 35

Country of birth:

How long residing in Canada (if immigrant):

Are you coming from low/middle/ high class?

End of interview

Before we finish the interview, do you have something to add about the topic that we did not talk? Do you mind if I contact you later by phone if any clarification is need? It would be no more than 5 min conversation.

Thank you for participating!!!

* * * * *

Appendix E: Consent forms

McGill

Informed Consent Form

Title: Perceptions and attitudes of McGill dental students towards poverty: a case study

Principal Investigators:

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Student Researcher:
Clarice Reis, Masters Candidate
Tel: (438) 883-5939
Email: clarice.reis@mail.mcgill.ca

The aim of this informed consent form is to provide you with information about the research project and what your participation entails. Do not hesitate to ask for more details. Please take your time to read the document carefully and to understand all the information provided.

1. Introduction:

The literature demonstrates that oral health diseases tend to be more prevalent in low-income individuals than among those who are situated in upper socioeconomic scales of society. Given that the provision of adequate dental care is essential to improving oral health amongst low-income patients, it is important that this challenge be addressed during dental students' education. Moreover, the education provided throughout dental school plays an important role in shaping students' interaction with their patients as dental professionals in later years. Thus, the purpose of this investigation is to explore and understand the attitudes and perceptions of McGill University dental students in their final year towards poverty and the dental care provided to low-income patients. More particularly, the question that will guide the

present study is: **How do final year dental students at McGill University perceive poverty and the dental care provided to low-income patients in Montreal.** A case study design with participatory approach has been selected as a research strategy to this qualitative study. By exploring the qualitative dimensions of students' attitudes on these important issues, this study will make an important contribution towards better understanding and taking action to resolve this critical public health problem.

2. Study procedures:

If you agree to participate in this study, you will be interviewed by the student research. The semi-structured interviews will last approximately one hour and will be audio-taped with permission. The questions will be focused on exploring your experiences with regard to providing dental care to low-income patients. If you accept, you may be contacted during the analysis of the data for clarification questions. The researchers will come to a convenient location to conduct the interviews.

3. Benefits and risks:

There are no risks involved in participating in this study. You will receive no personal benefit from your participation in this study. We hope, however, that the results we obtain will contribute positively to dental education.

4. Withdrawal from Study:

Your participation is voluntary. You will not be affecting if you decide not to participate. You are free to withdraw from the study at any time, at no penalty.

5. Cost and Compensation:

Your participation in this study will not involve any costs to you. You will not receive any monetary compensation for participating in this study.

6. Confidentiality and Disposition of Project Data and Results:

Your personal information will remain strictly confidential during the study, within the limits of the law, and you will only be identified with a code in order to protect your identity. Publications will not contain any information that could disclose your identity. At the end of the study, recordings and transcription of the interviews will be storage for two years and then destroyed. All the information gathered will be used solely for academic purposes. Only researchers will have access to original data. Results will be published in scientific journals and available to all participants.

7. Contact Information:

Should you have any question about this study, or if you wish to withdraw from the study, you can call the student researcher at any time: Clarice Reis at (438) 883-5939. If you have any question regarding your rights as a participant, you may contact Ilde Lepore from McGill University Institutional Review Board at (514) 398-8302.

8. Consent:

Your signature indicates that you have understood the information concerning your participation in this research project and that you agree to participate. It does not mean that you accept to alienate any of your rights, or those researchers, sponsors, or organisations have been exempted from their professionals or legal responsibilities.

The study, its interventions, the risks and advantages, as well as the confidential nature of the information were explained to me. I had an opportunity to ask any question that I might have and to receive satisfactory answers. I had sufficient time to make a decision about participating. I agree to participate in this study. I have received a copy of this informed consent form.

Participant

_____

Name

_____

Signature, Date

Student Researcher:

Clarice Reis

_____

Signature, Date

Principal Investigator:

Charo Rodríguez MD PhD

_____

Signature, Date

McGill

Informed consent form for participant observation
Staff Outreach program

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2. Study procedures:
Part of this study involves observing last year dental students during the outreach program. We anticipate that the student researcher may need to talk with the outreach staffs to better understand the structure and context of the program. Thus, if you agree to participate in this study, the student researcher will ask you some questions related to the project and take notes of your conversation.

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There are no risks involved in participating in this study. You will receive no personal benefit from your participation in this study. We hope, however, that the results we obtain will contribute positively to dental education.

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Signature, Date

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Clarice Reis

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Signature, Date

Principal Investigators:
Charo Rodríguez MD PhD

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Signature, Date

Christophe Bedos DDS, PhD

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Informed consent form for documental analysis

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A case study design with a participatory research approach has been adopted as a research strategy for this investigation.

2. Study procedures:
One of the sources of data in this study is documental analysis. For that reason, we would like to ask your permission to examine the documents that you handed in during the Dental Public Health course (DENT 305), i.e., project report, and personal reflections. This procedure is anonymous and confidential. If you agree to participate, you will only be identified with a code in order to protect your identity. We ensure you that faculty members will not have access whether or not you agree to participate in this study.

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There are no risks involved in participating in this study. You will receive no personal benefit from your participation in this study. We hope, however, that the results we obtain will contribute positively to dental education.

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Signature, Date

Christophe Bedos DDS, PhD

_____
Signature, Date

Appendix F: Deductive code manual

Code 1

Label: Consciousness

Critical consciousness:

Definition (what the theme concerns): critical understanding of socio-economic and political conditions.

Working definition*:* participants' critical understanding of socio-economic and political conditions of low-income populations and the provision of dental care services to these populations.

The antithesis of critical consciousness is:

Naïve consciousness:

Definition: spontaneous and ingenuous apprehension of reality without critical thinking of the phenomena.

Working definition: dental students acknowledge the existence of poverty and of the need for dental care services to be provided to low-income populations. This acknowledgement lacks critical reflection.

Code 2

Label: Dialogue

Definition (what the theme concerns): knowledge is socially constructed through a dialogue approach and all participants are equals and co-learners in that process.

Working definition: knowledge about poverty and dental care services provided to low-income populations is socially constructed through a dialogue approach among equals from the students, members of the university community and patients.

Attributes - for Paulo Freire, a dialogue approach presupposes:

Love

Definition: dialogue cannot exist in the absence of love for the world and for people. Love is commitment to others.

Working definition: in a social construction of knowledge about poverty at the McGill Faculty of Dentistry, there is love for the cause of fighting poverty and improving the quality of dental care service to low-income populations.

Humility

Definition: dialogue with a view to constructing social knowledge is broken if the parties lack humility in the common task of learning. Self-sufficiency is incompatible with dialogue.

Working definition: there is an open/shared environment in which knowledge about poverty and related challenges is constructed at the McGill Faculty of Dentistry.

Faith in humankind

Definition: dialogue to construct social knowledge requires faith in the power of humankind to transform reality.

Working definition: through a dialogue approach, members of the McGill Faculty of Dentistry community have faith in the ability of humankind to fight poverty and improve dental care services to low-income populations.

Code 3

Label: Education

Problem-posing education

Definition (what the theme concerns): the process of developing a personal perspective and critical reflective awareness through deconstruction of one's own values to understand people's worldviews, values, and experiences. It implies treating a problem always as questionable.

Working definition: the process through which McGill dental students step back from their own worldviews and critically reflect on poverty and dental cares services offered to low-income populations.

The opposite of problem-posing education is:

Banking education:

Definition: education is considered an act of depositing knowledge, in which students are depositories and teachers the depositors. Students are not stimulated to critical thinking.

Working definition: dental students passively receive knowledge without stimulus for critical thinking.

Code 4

Label: Praxis

Praxis:

Definition (what the theme concerns): the active process through which reflection on and action in the world occur simultaneously, with a view to transforming social conditions.

Working definition: the process through which dental students not only reflect but also take action to affect poverty and dental care provided to low-income populations.

Sub-codes – the absence of a complete praxis generates either:

Verbalism:

Definition: exclusive emphasis on the reflection dimension with lack of action to affect change.

Working definition: dental students reflect on and verbalize about poverty issues and dental care provided to low-income populations without taking action to affect change.

Activism:

Definition: exclusive emphasis on the action dimension without enough reflection.

Working definition: dental students take action toward poverty and dental care provided to low-income populations without reflective foundation.