Exploring Interprofessional Relationships Between Dental Hygienists and Health Professionals in Rural Canadian Communities

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Abstract

Purpose: For most Canadians living in rural communities, limited access to dental care can negatively impact oral and general health. This narrative, tertiary review of the literature explores the outcomes of interprofessional relationships between dental hygienists and other health professionals on individuals residing in rural communities in Canada. Themes addressed include: implementing interprofessional education experiences in entry-to-practice health programs, interprofessional dynamics in primary health care teams, health perceptions in rural communities, and barriers and enablers to interprofessional relationships.

Conclusion: Findings from this review suggest that the development of interprofessional relationships between health care professionals is complex and dynamic. Interprofessional collaboration should first be implemented at the educational level to help develop trust and understanding of each profession's role in health care. Alternative models of health care delivery, such as interprofessional collaborative practice, have the potential to reduce overall health care costs and improve access of comprehensive health care services to Canadians residing in rural communities.

Keywords: interprofessional collaboration, interprofessional education, dental hygienists, oral health, access to care, rural populations

This manuscript addresses the NDHRA priority area: **Population level: Access to care** (interventions).

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Introduction

For the approximately 28% of Canadians residing in rural settings, and a dentist-population ratio 3.5 times lower in rural versus urban areas, limited access to dental care impacts oral health and can contribute to concerns for overall health and wellness.[1,2] Several factors are taken into consideration in identifying Canadian rural communities. A rural community is most commonly defined by its geographic area; situated outside of an urban center with fewer than 1,000 residents and a population density of fewer than 400 people per square kilometer.[3] In other words, rurality reflects smaller populations lacking access to the full range of services and infrastructure due to distance and isolation.[4] In times of increasingly complex health care issues including economic challenges, escalating health care costs and limited access to physicians; alternative models of health care delivery such as interprofessional collaborative practice have the potential to improve access to comprehensive health care services, thereby reducing the inequality between urban and rural health care access.[1,5,6] Interprofessional relationships encourage collaboration, communication, and teamwork from multiple health care professional backgrounds to provide comprehensive health care strategies in order to treat the needs of clients.[6,7] Interdisciplinary collaboration further promotes the abilities of professionals to solve problems collectively and supports working together towards a common goal thus diminishing the many common challenges faced by health care systems globally.[6,7]

Western health care commonly utilizes an approach in which the individual is compartmentalized into body parts and disease entities, and by interventions recommended by uniquely educated health care professionals.[8,9] This approach reduces effective collaboration between professionals and contributes to a limited understanding of each other's roles and responsibilities within a health care team.[8-10] Bowes and colleagues state that a multifaceted, coordinated strategy is more effective in reaching a broader range of individuals than the traditional approach where oral health care is seen as independent and outside of mainstream health.[10] An interdisciplinary approach to care that includes the sharing of information and expertise between primary care providers and other health care professionals will enhance the quality of

oral and general health care for Canadians living in rural communities.[10]

Rural settings may not have been able to support the development and maintenance of interprofessional skills due to a lack of resources, large travel distances, and scarcity of hospitals. However, given the link between oral and systemic health, dental hygienists are well positioned to play a pivotal role in collaborating with existing health care providers by incorporating the oral health perspective while exploring the wide range of opportunities to work within rural communities. Such collaboration has the potential to foster increased oral health education and awareness, post-natal education to new mothers, dietary counseling, fluoride clinics, oral cancer screening, smoking cessation, the provision of referral information, and other beneficial services. Referrals from dental hygienists to other health care providers can facilitate the integration of dental hygiene services into the client's total health care plan.[11] It is also noteworthy that increased client satisfaction has been documented when interprofessional collaboration has been maximized.[12]

The purpose of this tertiary literature review is to assess the benefits of interprofessional collaboration between dental hygienists and other health care providers in rural Canadian communities. The need to improve access to health care, including dental care, for rural communities is evident, and research suggests that interprofessional collaboration in health care can positively influence access and practice outcomes.[1]

Methods

A tertiary research review was conducted using the PubMed, CINAHL, Education Source, and Google Scholar search databases with a refined search of peer-reviewed literature published between 1997 and 2015. The following search terms were used: interprofessional role in Canada; oral care; health care; rural communities; education; limitations of dental hygiene in rural Canada; dental or dental hygiene access and rural comminutes; dentist; nurse practitioner; registered nurse/midwife; dietitian; occupational therapist; pharmacist; physiotherapist; physician; physician assistant; physician; and health professional. Sixteen research studies, including exploratory case studies, comparative case studies, randomized controlled trials, longitudinal and retrospective cohort studies, and cross-sectional studies using qualitative, quantitative and mixed method designs were included. Additionally, two literature reviews and two editorials were reviewed. Excluded from this review were articles not published in English.

Discussion

Themes associated with interprofessional collaboration

Interprofessional Education in Entry-to-Practice Health Programs

Interprofessional education (IPE) in post secondary institutions is gaining recognition as it can bring forth collaboration, communication and teamwork necessary to develop a comprehensive health care plan to manage oral and systemic health care needs in clients.[7,12-15] IPE is defined by the World Health Organization (WHO) as students from two or more professions learning about, from, and with each other to enable effective collaboration and improve health outcomes.[6] A growing body of evidence demonstrates the benefits of IPE within entry-to-practice health professional programs.[16] Post-secondary institutions are committed to graduating health professionals who have the ability to work collaboratively as members of an integrated health care team but many educational programs continue to deliver curricula in discipline-specific silos.[16,17] The underlying premise behind IPE is that if health professionals learn together then they will be better prepared to work together towards improving health outcomes.[16,17]

Multiple prominent organizations and accrediting bodies advocate for IPE. The Commission on Dental Accreditation of Canada stipulates that interprofessional collaboration experiences must be provided for students in all dental hygiene programs.[18] The Health Council of Canada has also included a recommendation that each university health program offer IPE to reflect the vision of interprofessional collaborative practice within health care teams and organizations.[20] Research demonstrates that as health workers move through the system, interprofessional learning experiences offer students the necessary skills to become part of a collaborative, practice-ready, health workforce.[6]

In its Framework for Action on Interprofessional Education and Collaborative Practice (2010), the WHO proclaims a worldwide shortage of approximately four million health care workers and calls for an upscaling of health care workforce production through innovative approaches to teaching in developed countries.[19] The WHO acknowledges the need to strengthen health care systems around the world by encouraging a rapid improvement in educational approaches involving interprofessional collaboration.[19] Furthermore, the WHO recognizes interprofessional collaboration to be one of the most promising solutions to transforming health care in order to build a more flexible health workforce that is able to maximize limited resources and improve access to care.[19] In 2008, the WHO conducted a global environmental scan of health educational programs to assess institutional practices involving

IPE.[19] The scan included 396 institutions across 42 countries.[19] Results demonstrated that IPE occurs in numerous countries and involves various health science and human service professions.[19] Oral health professionals, however, were notably absent from the scan results.[16,19]

Research specifically on IPE and dental hygiene is scarce; however, Navickis and Mathieson conducted a recent national survey assessing dental hygiene students' perceptions of interprofessional collaboration across dental hygiene associate degree programs in the United States.[17] Their findings concluded that dental hygiene students have positive attitudes towards IPE and collaborative practice and that participation in IPE may better prepare dental hygienists to provide quality patient care.[17] There is an absence of similar studies assessing IPE perceptions and outcomes in dental hygiene programs in Canada. However, Kanji and colleagues published a model of IPE being utilized in the University of British Columbia's Dental Hygiene Degree Program and concluded that further research aimed at assessing outcomes and collaborative practice behaviors are needed.[16]

Rosenfield, et al, found that the initial perceptions of students in relation to their first experiences in health professional education programs felt that IPE had both value and merit for their professional education.[13] Research suggests that IPE should employ more small-group sessions as opposed to large-group sessions, be less reliant on lecture based learning, become a regular longitudinal part of undergraduate education, and be well integrated into existing curricula.[13,14] In addition, IPE helps with understanding health professionals, offers multiple viewpoints and perspectives, provides review of one's own ideas, increases awareness of one's own specialty, endorses holistic care, supports knowledge of social resources, and encourages communication, group discussion, and sharing.[12] The study offers insight to educators for enhancing the design and implementation of IPE initiatives as well as facilitates the long-term sustainability of IPE.[12-15]

Interprofessional dynamics in primary health care teams and dental hygiene

Interprofessional dynamics in primary health care teams is associated with the roles constructed within interprofessional health care teams as health care professionals often overlook the value of teamwork.[6,15,19,21] Interprofessional collaboration occurs when members of an interprofessional team, each with unique skills, work together to solve problems, provide services, and achieve optimal outcomes for clients and their families.[15,19,21,22] MacNaughton, et al, examined the various types of role boundaries, influences on role construction, and the implications for professionals and clients.[8] The research suggests that concrete strategies and protocols are needed as a lack of formal structure is cited as the major reason for ineffectiveness as well as frequent staff turnover.[15,19,21] Four distinct attributes facilitate collaboration among health care professionals; *accessibility* - being present and willing to help a teammate, *trust* - believing that another person will act in the client's best interest, *value* - to each other's experience, skill, knowledge and perspective, and *leadership* - a strong leader creates and bolsters the shared vision of the organization, motivates team members towards high performance, and provides concrete examples for behaviors within the team.[19] Furthermore, results demonstrate that autonomy may be an important element in how the interprofessional team functions; empowering team members to develop autonomy can enhance collaborative interactions as well as lessen the workloads of teams.[15] When health care professionals work together, an interprofessional approach to care is associated with improved outcomes including greater client care, shorter duration of treatment, and overall reduced costs of care.[19] As such, effective interprofessional collaboration promotes positive client outcomes and can benefit the health care system.[19]

The assertion that oral health professionals can be significant interdisciplinary collaborators in the delivery of public health services was acknowledged in the 2005 Pan-Canadian Framework for Public Health Human Resources Planning when dental hygiene was listed as one of twelve regulated professions along with public health nurses, medical microbiologists, speech-language pathologists, and dietitians.[23] The Framework for Public Health Human Resources Planning was designed to help facilitate the enhancement of partnerships between government and stakeholders and it emphasized that through collaborative planning, all jurisdictions in Canada will have access to a knowledgeable workforce to meet public health needs while reducing health and social disparities.[23] Dental hygiene was identified as one of the professions that can make a significant contribution to achieving this vision.[23]

Health perception in rural communities

Contextual factors such as underprovided public services and the unequal distribution of health services may contribute to the negative health perception in rural communities.[1] Individuals living in rural areas often have a positive image about residing in a rural location and do not see rurality as a threat to their oral health, although research suggests that rural culture is actually considered a health threat.[1,6] Transportation, or lack there of, is one of the primary barriers to accessing oral health care, particularly for the elderly and those with physical disabilities.[1] Rural residents indicate that they have fewer resources and longer wait times than people living in cities and also feel somewhat isolated from dental professionals.[1] A lack of accessible information and limited educational programs focusing on oral health further contributes to the deficiency.[1] The research not only highlights

the need for better education surrounding oral health in rural communities, but also supports the importance of proactive, collaborative, multifaceted approaches in communities and interprofessional approaches to health care.[1] Oral health disease, unmet dental care needs, and lower utilization of dental care are more prevalent in populations whose access is compromised by geographic location.[24] Research demonstrates that collaboration between dental hygienists and public health nurses in rural communities can generate a moderate decrease in the mean number of decayed, missing, filled, and treated teeth as well as increase disease prevention in underserved populations.[24,25] Between the two professions, collaborative counseling sessions about child development, in-home education, fluoride supplements, tooth brushing demonstration, breastfeeding education, and dentally healthy diets can be provided and have been found to be successful education strategies for young mothers and their infants.[24,25]

Barriers and enablers to interprofessional relationships

Professional factors that impede interprofessional collaboration include workload and time constraints.[22] More specifically, workforce limitations, not valuing the team or other health professionals, and absence or fragmentation of services can inhibit successful interprofessional collaboration.[22] As Parker et al state, "health professionals working in rural settings are likely to provide a broader range of services, work longer hours, operate without adequate locum coverage, have restricted access to specialists expertise, and have limited access to professional support networks."[22] Additional challenges include limited access to professional development, lack of supervision and peer support, and minimal opportunity for interprofessional team work.[4] The quality of interprofessional collaboration is remiss when professionals do not know or understand one another's roles, and when others are not considerate of or communicate effectively with other team members.[6,13,22] As a result, defined roles and responsibilities are needed within a safe environment that will encourage open communication.[6,13,22] The conceptual hierarchy among professions must be deconstructed and the knowledge of all professionals should be valued and considered.[6] Recognizing the values of each profession reiterates the importance of understanding one another's professional roles and responsibilities.[6,7,13] In order to safely provide sufficient care as an interprofessional team member, knowledge of collaborating professionals' scope of practice needs to be instilled at the ground level, through IPE.[6,7,13]

Rural health services face challenges in recruiting and retraining adequate numbers of health professionals for various reasons, though most notably due to a feeling of isolation.[22] Collaboration between professionals has been shown to improve retention of health professionals in rural communities because it encourages a sense of community and synergy within the team.[1,22] This sense of community emphasizes the importance of creating a common vision for successful collaboration.[1,4,22]

Lastly, a lack of funding to support interprofessional relationships in rural communities significantly impacts the potential for development of public health initiatives, without which the development of interprofessional activities will not be possible.[4,22] Increased funding will allow for further development of sustainable models of care centered around interdisciplinary approaches to health care, increase the number of public health positions, and provide for additional medical equipment and other educational resources for health care professionals.[26]

Gaps in the research and future recommendations

Health care is beginning to recognize the benefits of interprofessional collaboration, not only to clients' overall health but also in its ability to reach rural communities and reduce health care costs.[4] Further studies are needed to evaluate if the suggestions provided to improve interprofessional relationships, beginning with educational models (small-group sessions, a reduction in lecture-based learning, integration of IPE as a consistent component of undergraduate education), do in fact improve students' knowledge and values regarding interprofessional collaboration.[13,14] These findings underscore the need for further research of interprofessional curricula, to shift the research agenda beyond evaluation of classroom-based interventions and towards linking IPE with changes in collective care behaviour.[13,14,27] Despite international support for IPE there remains a paucity of systematic evidence of its effectiveness and associated practice outcomes.[28] The question remains whether students who experience curricula with embedded IPE are able to practice more interprofessionally post-graduation. A 2015 report from the Institute of Medicine contained recommendations for further study on IPE which included the need to commit resources to a series of well-designed studies to demonstrate the association between IPE and collaborative practice behaviour.[29] Furthermore, attention needs to be given to informal learning (ongoing education cultivated outside of the standard learning process) to create innovative strategies and appropriate conditions for enhancing and incorporating informal learning in the workplace.[12]

There is a scarcity of research on the oral health status of rural populations in Canada.[1] Squillace suggests that improved systematic collection of data from dental hygienists in public health settings would provide evidence that may affect public oral health policies and encourage further funding and

research.[24] Such data sets include frequency of visits to a dental professional, subsequent use of prevention and restorative services, and the corresponding age of the client to these visits.[24]

Future research can focus on the development of sustainable models of rural interprofessional relationships and the mechanisms that drive successful interprofessional relationships in rural communities, including strategies involving dental professionals.[22] Although there is research surrounding interprofessional relationships within the dental profession, current research has not explored the outcome of dental professionals integrating within other health professional communities and the contributing factors that can improve health care with the added expertise of the oral health care professional. A greater understanding of the barriers and possible solutions for interprofessional relationships between dental and other health care professions is essential to adequately demonstrate the outcomes of interprofessional relationships between dental hygienists and other health professionals on Canadian rural communities and on rural communities at large.

Conclusion

To achieve interprofessional collaboration there is a need for cultural change, trust, respect, and sharing of information and communication across professions.[22] The development of interprofessional relationships between health care professionals is a complex dynamic and this relationship needs to begin with IPE at the entry-to-practice educational program level to develop trust and understanding of one another's role in health care.[7,13] Alternative models of health care delivery, such as interprofessional collaboration, have the potential to improve access of comprehensive oral health and health care services to rural communities therefore reducing the inequality between urban and rural health care access.[1,5] Research demonstrates that collaboration between dental hygienists and public health nurses increases overall health and disease prevention in underserved populations.[24,25] Collaborative interprofessional partnerships may provide all jurisdictions in Canada with better access to a knowledgeable public health workforce to meet public health needs and reduce health and social disparities.[23] Dental hygiene has been identified as one of the professions that can have a meaningful role in achieving this vision.[23-25] More research is needed to identify effective strategies to provide oral health care to underserved communities and to recognize the complex relationship between collaboration and autonomy to further understand the implications of interprofessional collaboration for professionals and clients.[1,15]

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