The Impact of Oral Health Training Taken by Personal Support Workers Caring for a Geriatric Population in a Long-Term Care Facility: A Mixed Methods Study

by

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A thesis submitted in conformity with the requirements for the degree of Master of Science in Dental Public Health

Graduate Department of Dentistry
University of Toronto

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Abstract

Personal support workers (PSW) employed in long-term care (LTC) facilities provide the majority of primary resident care. Oral health care is a primary care provision that is rarely carried out to an acceptable standard. The purpose of this study was to ascertain if and how a mandatory oral health online education module impacted the PSWs’ knowledge and beliefs in their care for a geriatric population at an over 400 bed LTC facility in Ontario. The mixed methods convergent design study included a quantitative pre/post-test design and qualitative face-to-face focus groups and one-on-one interviews with 88 and 23 participants, respectively. The results indicated that the online module had limited impact on the PSWs’ oral health knowledge and beliefs in their resident oral health care. Personal support workers recognize their need for training to care for residents with complex needs and often requested dialogic hands-on training with a self-initiated dental hygienist.
Dedication

This thesis is dedicated to my family:

To my Mother who gave of herself and sacrificed much to enable me to complete my studies. She encouraged and supported me in so many ways and was understanding of the demands of this project. My Mom is a seasoned teacher who provided insight into what life is like living as a senior. Thank you for always being there for our family.

To my two children who were patient, understanding and independent which allowed me time to work on this project. I am proud of what they have accomplished on their own and how they have developed into the incredible and principled people they are today. I am so very proud of you both and am excited for your futures.

To my sister, my brother and their spouses for their love, support and encouragement.
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Thank you to my outstanding committee team members including Dr. Craig Dale and Dr. Jim Yuan Lai. Their leadership, advice and support greatly contributed to my learning and the success of this project.

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A special thank you to the PSWs who graciously agreed to participate in this study. I am inspired by the care, dedication, and compassion they provide the residents, given their workload and demands. I am indebted to their personal time given for the benefit of this study and their desire to advance the oral health of their residents. It has been a privilege to have met, interviewed and learned from you.

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Finally, it is with immense gratitude that I thank the incredible people who reside at the long-term care facility. They have positively contributed to our society and have given so much of themselves in so doing. It is important that we now care for them the best we can and advocate on their behalf so that they can live their final years to the fullest.
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Chapter 1 Introduction and Study Overview

1.1 Oral Health in Seniors

Advances in dentistry have contributed to the current tendency of seniors retaining their natural dentition for a longer period of time than what was typical in the past (1-9). This is important considering the mouth is an integral part of the body, relied upon for basic functions such as chewing, eating, speaking and socializing (3-6, 9-12). An unfortunate and worldwide reality is that frail residents suffer greater rates of poor oral health and preventable disease in long-term care (LTC) facilities compared to those who are living in communities (2, 4, 6, 7, 10, 13-16). The percentage of residents who report oral health problems include 41%-79% for caries, 66%-74% for gingivitis, 32%-49% periodontal needs, 5%-17% and 3% dental and gingival pain, respectively (6, 17-25). Compromised oral health care poses a safety concern which can predispose seniors to oral disease resulting in deleterious consequences physically, psychologically and socially such as malnutrition, pneumonia, reduced quality of life, negative impact on their overall health, and increased need for caregiver involvement and costs (2, 6, 14-16, 26-29).

1.2 Canadian Demographics

In 2017 for the first time in Canadian history, seniors, defined to be aged 65 years or older, outnumbered children (30). In fact, there is a global demographic trend occurring whereby the population is aging as a result of an increased life expectancy and a reduced fertility rate (3, 7, 10, 31). The Canadian population is made up of a sizeable elderly portion which is expected to advance at a rapid rate in the coming years (2, 30). The 2011 Canadian Census of Population reported that there were 4,945,000 seniors which accounted for 14.8% of the population (32). According to Statistics Canada, by 2036, the Canadian population is expected to comprise of approximately 23% to 25% of seniors (30).

1.3 Long-term Care Residence

A 2011 Statistics Canada report indicated that the population of seniors who resided in private households accounted for 92.1%, whilst 7.9% lived in ‘collective dwellings’, including senior
residences or health care facilities such as those that provide LTC (30). Many seniors with health conditions who require care beyond that available in their private household could be better managed in LTC facilities (10). As the population ages, demands on health care and LTC facilities increase as more seniors require assistance to carry out activities of daily living, Figures 1 and 2 (10, 33). This is particularly significant from an oral health perspective given that the senior population is transitioning from what was a predominantly edentulous status to retaining their teeth and requiring more and often complex oral health care (7).

1.4 Functional Capacity of Seniors

Given the demographic transformation of an aging population, health care demands are expected to increase at a rapid rate (1, 6, 7, 10, 30, 34). The World Health Organization states that ‘health is not merely the absence of illness or infirmity, but a state of complete physical, mental and social well-being’ (35). Grounded on this definition of health, the 2003 Canadian Community Health Survey (CCHS) assessed ‘good health’ using the four following measures: good functional health, independence in activities of daily living, positive self-perceived general health, and positive self-perceived mental health (35, 36). The first measure of good functional health was based on a disability that could alter the ability to carry out activities accepted as normal such as: hearing, vision, speech, mobility, dexterity, cognitive abilities, and being pain-free (36). The second measure being independence in activities of daily living was based on reports provided by respondents regarding assistance not required for specific activities (36). For completeness, the last two measures of positive general health and positive mental health were self-perceived (36).

Based on the CCHS, good health decreased with age and was reported to be 65% for 65-74-year olds, 45% for 75-84-year olds and decreased by more than half to 22% for seniors 85 years old and older (36). Additionally, it was reported that seven in 10 seniors had ‘good functional health’ and were able to carry out activities of daily living (36). Good functional health in seniors however, abruptly deteriorates with age (36). For example, 80% of seniors aged 65 to 74 years old were disability free or had a disability that was corrected. However, only 37% of seniors aged 85 years old or older could be similarly categorized (36). The reduced health status, and in particular the impact this can have on performing activities of daily living, such as oral health care, increases the demands for health care both within home and institutional settings (33).
1.5 Personal Support Worker

Specific groups of caregivers employed in LTC facilities are entrusted to assist or fully provide daily resident care, including oral hygiene (6, 10, 13, 37, 38). Personal support workers (PSW), also known as nurses’ aides, care-workers, care-aides, or care assistants, are one such group that provide daily care to those who are assigned to them (6, 11, 13, 37). The typical PSW training program provides minimal to no oral health instruction to trainees (6, 11, 37). Once trained and employed, this unregulated and non-professional caregiver staff group tend to have a full and busy schedule while they carry out personal resident care under minimal supervision (6, 11, 37, 39). Additionally, PSWs have articulated their unease with providing oral hygiene, suggesting additional training as a means to obtain skills in order to better serve their clients (6, 13, 38, 40, 41). It is common for PSWs to be from various cultures and have different values and language abilities than the seniors they care for (37). Legislation, regulations and employer job descriptions, specifically regarding PSWs and their provision of oral hygiene can be ambiguous or non-existent (42, 43). Oral health care is a primary care provision, which requires daily attention. Circumstances predispose residents to poor and potentially fatal, yet preventable oral health problems thus for the reasons identified, PSWs may not be consistently carrying out resident oral hygiene to an acceptable standard (6, 10, 13, 37, 39).

1.6 Thesis Overview

Having introduced preliminary components of this study, Chapter 2 will review the literature pertaining to training of PSWs, their social interactions, and organization of care services as well as the importance for resident oral hygiene. Focus will be on the PSWs’ knowledge and beliefs regarding resident oral health care.

Chapter 3 details the study’s objectives and the central research question. Specifically, the null hypothesis posed for the quantitative results is that PSWs employed at a LTC facility for geriatric care who consent to participate in the study will not experience any changes in knowledge and beliefs regarding oral health and its provision to residents following the mandated oral health online education module.
Chapter 4 presents the study’s conceptual framework. Shown are factors that influence the PSW in their provision of resident oral health care as well as resident factors that can impact the care they receive.

Chapter 5 explains the study’s design and methods. The convergent mixed method study concurrently combined the quantitative and qualitative data collections and subsequent analyses. The quantitative methodology describes content and implementation of the questionnaires and surveys, the online oral health training module, data collection, and data analysis. The qualitative methodology details the recruitment process of PSWs for focus groups/interviews, the semi-structured questions posed, the demographic survey, data collection, and data analysis. The study’s ethical considerations are explained.

Chapter 6 presents the quantitative, qualitative study results from which three mixed method themes emerged: oral health module recall, learning needs and methods, and timing of oral health care.

Chapter 7, the discussion will answer the central research question pertaining to whether or not the subject PSWs experienced changes in knowledge and beliefs regarding oral health and its provision to residents following the mandated oral health online education module and focus group/interview. The three emerged themes are explored in detail.

Chapter 8, the conclusion, provides a summary of this study’s findings. The practical recommendations relate to how future iterations of oral health training for PSWs can be re-envisioned with a view to impact their knowledge, beliefs, and behaviours for the benefit of LTC residents.

1.7 Summary

The purpose of this thesis is to investigate the impact of an online education module on oral health care. Compromised oral health adversely impacts the most vulnerable populations, including the elderly. Poor oral health has far reaching consequences from loss of function to nosocomial infections, such as aspiration pneumonia, that can be fatal. Long term care residents rely on PSWs for their care. An effective preventative oral care program and improved oral health care training of PSWs are essential for the health of LTC residents.
Chapter 2 Literature Review

2 Introduction

This narrative review (44-46) of the literature presents research findings regarding the oral health care training of caregivers, social interaction amongst caregivers, and the organizational factors that direct oral care. Also included are findings pertaining to the sequelae of pathogenic bacteria in the oral cavity. Literature was limited to studies that pertained to the impact oral health care training had on PSWs’ knowledge and beliefs in the provision of oral health care to a geriatric population in LTC. Excluded were: other care provider groups, students, residents, unpaid caregivers, family members, researchers, managers, hospitals, home care, primary care, non-empirical literature, and non-English literature. Additionally, literature included research pertaining to working environment, specifically social interactions with caregivers as well as established guidelines directing PSWs in their provision of resident oral health care. The literature search was limited to direct care providers known as care aides who include PSWs; it does not consider regulated staff such as nurses.

This review focuses first on the recent systematic review and meta-analysis, and applicable studies; the second part will consider other literature.

2.1 Overview of Research Studies

2.1.1 A Systematic Review and Meta-Analysis

A systematic review and meta-analysis conducted in 2017 by Hoben, Clarke, Huynh, Kobagi, Kent, Hu, Pereira, Xiong, Yu, Xiang, and Yoon focused on 41 studies which were documented in 45 references (6). These studies concentrated on care aides’ perceived barriers and facilitators in the provision of oral health care to nursing home residents. Hoben et al. concluded that the studies concerning the care aides’ perceived barriers and facilitators were methodologically weak and called for further research in this area.

The methodological quality of each study was independently reviewed by two reviewers (6). The entire research team then appraised the studies in greater detail. The evaluation process involved
the use of one of three checklists applicable to the respective study design. The three validated checklists used include:

1. Quality Assessment Tool for Quantitative Studies (QATQS) for studies with or without a control group and with or without participant randomization;

2. Estabrooks Quality Assessment Tool for Quantitative Studies (QAVT-CS) for cross-sectional studies; and

3. Critical Appraisal Skills Program (CASP) for qualitative studies (6).

An established scoring method was employed to compare ratings between the checklists in four categories of strength: weak, low moderate, high moderate, and strong (6). Quality of the various study methodologies ranged from weak to high moderate including: 18 weak (11, 41, 47-60), six low moderate (13, 53, 61-64), two high moderate (65, 66) and one mixed methods study with a weak cross-sectional element and low moderate qualitative element (53). No studies were rated as strong. The research group’s general conclusion was that the studies pertaining to barriers and facilitators perceived by care aides were methodologically weak. Limitations of the studies were the result of (6, 11, 13, 41, 47-66):

- samples not representative of the study population (i.e., care aides);
- use of low-quality research tools (i.e., validity and/or reliability were not verified);
- incomplete reporting of missing data, information about the study sample (i.e., sub-group characteristics), or outcomes particular to care aides;
- inconclusive reporting of practices (i.e., qualitative studies lacked explanation regarding rationale for study design selection); and
- insufficient details pertaining to data collection, methods of analysis, and recruitment (i.e., rationale and number of non-participants).

The systematic review and meta-analysis carried out by Hoben et al. and the applicable studies begin this review (6, 11, 13, 41, 47-66). Despite the reported weak methodological quality of the studies, the rationale for including this literature relates to the fact that this publication is recent
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(2017) and is a relevant systematic review. The reviewed literature includes a total of 46 studies with findings from multiple registered (i.e., registered nurse), and non-registered (i.e., PSW) caregiver groups. Twenty three of the 46 studies, spanning from 1994 to 2016, inform of the barriers and the facilitators in the provision of resident oral health care by non-registered caregivers (6, 11, 13, 41, 47-66). Table 1 highlights relevant features of these 23 studies.

The studies were conducted in 10 industrialized countries (6, 11, 13, 41, 47-66). Of the 23 studies (6), the various designs included seven qualitative studies using interviews (11, 54, 56, 61, 62, 65, 66), six each of mixed methods studies (48, 49, 52, 53, 59, 60) and cross-sectional surveys (47, 50, 51, 57, 58, 64), three randomized control trials (13, 41, 63) and a one-group pre-and post-survey (55). Out of the 23 applicable studies (6), four were carried out in Canada, including two mixed methods (49, 53), one randomized control trial (41), and one qualitative study (61).

Despite methodological weakness, these 23 studies suggest important findings related to training and other related aspects from the perspective of the care aide (i.e., PSW) (6, 11, 13, 41, 47-66). Care aides’ perceived barriers and facilitators were categorized by Hoben et al. into five themes including, training of care aides, social interactions (including their interprofessional communications), organization of care services (including policy and guidelines), residents’ characteristics, and residents’ family members (6). The first three themes, specifically, training of care aides (11, 13, 41, 47-52, 55-66), social interactions (including care aides’ interprofessional communications) (13, 48, 49, 51, 52, 57, 61, 62, 65), and organization of care services (including policy and guidelines) (11, 47-50, 52, 54, 55, 58-62, 65, 66) are relevant to this study and thus will be explored in detail.

2.1.1.1 Training of Care Aides (PSWs)

Care aides identified knowledge and skill as major factors that impact resident oral health care (6, 11, 13, 41, 47-52, 55-66). Oral health training was perceived by the care aides as both a barrier and a facilitator to the provision of oral health care for residents in LTC. The lack of caregiver oral health training, education and knowledge was reported as a barrier. Specific concerns relate to complex resident oral health needs that may be compounded with challenging behavioural, cognitive, physical, and/or oral health factors. Conversely, care aides attributed their improved oral care knowledge to their acquisition of adequate training and education.
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This distribution of knowledge does not necessarily result in a change of behaviour, according to Hoben et al. (6). The researchers reported that “we need robust studies evaluating the effectiveness of educational strategies specifically tailored to the needs of care aides, to reduce barriers identified in providing oral care” pg. 47. This finding was also reported in a Cochrane Systematic Review by Albrecht, Kupfer, Reissmann, Mühlhauser, and Köpke (2016) in that they “found insufficient evidence to draw robust conclusions about the effects of oral health educational interventions for nursing home staff…”, pg. 2. The Cochrane Systematic Review was limited to randomized controlled trials (RCT) in which the objective dental indexes including plaque, gingival bleeding, and caries scores remained consistent and did not undergo a statistically significant change. The problem therein is that the RCTs are not accounting for contextual barriers to oral care delivery. The research gap regarding education and training involves the uncertainty of its effectiveness. Providing further education and training nevertheless may not impact behaviour because of the uncertainty of its effectiveness. Quality studies are needed to establish the effectiveness of training care aides (PSWs).

In addition to education, Hoben et al. identify beliefs and thoughts that care aides have concerning resident oral care as important factors worthy of consideration (6). Such factors can include other tasks being considered more important, fear of injury such as being bitten, and/or disgust and displeasure when providing oral health care. These factors can influence the impact training may have on the care aide and the oral health care they provide to the resident.

2.1.1.2 Social Interaction amongst Caregivers

According to Hoben et al., “care aides considered good cooperation and communication among care providers to be important in providing quality oral care to residents” pg. 47. Communicating resident oral health information amongst care providers was considered key for the resident’s health. Quality oral health care, as perceived by the care aides, involves favourable relationships between the members of the care team, “team work”, and “mutual collaboration” pg. 47 (6, 62, 66).

Care aides perceive their interpersonal relationships and interaction with nurses as being problematic and strained which negatively impacts resident care (6, 67-69). Hoben et al., identify unfavourable interactions between the two groups of care providers (6). For example, the majority of direct resident care is provided by the care aide, not the nurse, thus the care aides are
more apt to identify oral health problems in a timely manner. Inadequate interactions, however, between the two caregiver groups can result in resident conditions being overlooked if not identified by the care aide or shared with the nurse. Alternatively, nurses may not actively listen to, or seek oral health information from the care aide. First, inadequate interaction is important as the nurse is the care aide’s direct supervisor and is responsible for training them in the “best practice care” pg. 47. Second, nurses are responsible for the escalation of oral care problems to the most appropriate provider; this responsibility is not part of the care aides’ scope of practice. These two factors can negatively impact resident oral health (6, 13, 48, 49, 51, 52, 57, 61, 62, 65).

2.1.1.3 Organization of Care Services

Organizational factors impact resident oral health care provided by care aides (6, 11, 47-50, 52, 54, 55, 58-62, 65, 66). Key factors identified by Hoben et al. include time, staffing, oral health supplies, the availability of dental services, the resident’s ability to access dental services, and standards (i.e., policies and guidelines).

Care aides typically have heavy workloads and experience numerous interruptions throughout the day (11, 70, 71). Recurrent interruptions were reported in two studies as being problematic in the provision of resident oral health care (11, 71). The majority of PSWs (59.2%) reported that they believed that they rushed resident oral health care while 19% did not attempt to because they did not have enough time (6, 72). One significant finding was that staffing ratios were not reported that could provide perspective on the perceived lack of time available for resident oral care (6). Hoben et al. state that “organizational context factors such as leadership, culture, and feedback of performance data influence care aides’ use of best practices (73-75), job satisfaction (76), burnout levels (77), and resident outcomes (73-75).” Organizational factors limiting care aides from providing effective and consistent resident oral health care may be amenable to change thus focusing on them in quality improvement (QI) interventions could prove more influential than education alone (6, 73-75, 78).

2.1.1.4 Summary

In conclusion, Hoben et al.’s and applicable literature reported on three themes that were relevant to this study (6, 11, 13, 41, 47-66). Specific themes include training of care aides, social interactions (including their interprofessional communications), organization of care services
(including policy and guidelines) (6). Despite the weaknesses of the included studies, the information provided relevant insight that was from the perspective of the care aide (PSW) (6, 11, 13, 41, 47-66).

2.1.2 Additional Research Studies

Two other research studies not included in the Hoben et al.’s discussion focus on the impact of PSWs’ oral health training that is led by a registered dental hygienist (RDH), and organizational factors that can impact resident oral health care.

The first study used learning videos followed by a practical oral care session intended to advance oral health knowledge and behaviour of caregivers employed in a +400 resident LTC facility in Ontario, Canada (5, 79, 80). The initial phase involved nurses completing a baseline oral health assessment on each resident. Phase two involved 73 PSWs who watched, in a group setting, two videos regarding resident oral health care (5). The third phase consisted of practical oral health training that was led by a RDH to which approximately half (51%) of the caregivers chose to attend (5). The final phase involved an oral health reassessment of each resident which was completed by a nurse, one year after the initial oral health assessment.

The training provided was based on an oral health best practice guideline program that was developed by the Registered Nurses’ Association of Ontario (5, 81). The guideline was developed in collaboration with a panel of experts including a RDH. Components of the guideline include: resident baseline oral health status and comparison with flow sheet and an assessment tool completed by the nursing staff (not the PSWs); an education program for all caregivers; evaluation and recording of resident oral health status following the training and one year later.

McKeown, Woodbeck and Lloyd found that the training program did not significantly impact the caregivers’ knowledge and behaviour in the provision of resident oral health care. The follow-up that occurred one year after the educational program, revealed that the clinical effectiveness of the resident’s oral cavity had not significantly improved as the vast majority of residents (91%) had “moderate to abundant levels of debris” after having been assisted by the caregiver (5). The authors therefore voiced concern about the quality of care residents receive from the PSWs after they completed the training program (5). This study raises questions regarding: the impact of
training, or the lack thereof (approximately half of caregivers did not attend training sessions) had on the PSWs; and the lack of additional follow up throughout the year (5).

The researchers’ focus on the importance of the RDH’s role may be attributed to regulations mandating care in LTCs. For instance, the Ontario Government’s Long Term Care Homes Act (2007) (5, 82) requires that all LTC residents have a health assessment which includes an oral care assessment upon admission to the facility and on a regular basis thereafter. Although PSWs provide the majority of resident care, they are not permitted to carry out resident oral care assessments because this is not within their scope of practice (unregulated caregiver group). This study identified the limitations in the PSWs’ ability to carry out resident oral care assessment and recommended that a multidisciplinary approach involving regulated health care professionals be employed to augment oral care delivery and applicable duties (5). The RDH has the capacity to be a focal point for oral care interaction amongst caregivers and residents (5). Specifically, this study highlighted the RDH’s ability to carry out multiple oral health roles in LTC facilities including resident oral assessments, detection of oral health conditions that require attention and/or referral, and education of the staff, including PSWs (5).

According to the researchers, the RDH directed the oral health education program (involving the PSWs) that followed the presentation of the two instructional videos. Half of the caregiver staff took part in a supervised practice session where they were directed to use the techniques presented in the videos. The findings from this study suggest that the two oral health videos did not prepare the caregivers to provide appropriate oral care. The caregivers’ did not effectively transfer the oral health information viewed in the videos to the subsequent practical training session that was monitored by a hygienist. A few of the suboptimal techniques demonstrating oral care delivery in a hands-on training session included: several caregivers refused to carry out oral care on each other, and improper and at times harmful oral care procedures were used by caregivers (5). For instance, one caregiver inflicted pain on another caregiver while attempting to clean their natural dentition (5). It was realized that the caregiver wore dentures and lacked experience carrying out their own oral hygiene as well as cleaning natural dentition of others (5).

The hands-on training provided a forum in which the RDH could assess current practices and provide individualized instruction to caregivers in an effort to advance resident oral hygiene. Despite the findings of the training, the authors recommend the inclusion of a RDH as a subject matter expert (SME) who can carry out caregiver training and other oral health roles within the
LTC facility (5). The study asserts that resident-centered oral health in LTC facilities can only improve with the inclusion of sound organizational infrastructure (employees, time, records, and material assets) and education of staff (5).

A second study also concluded that the role of the dental hygienist is important to improving LTC residents’ oral health. This pilot study reported a change in caregivers’ perception of the oral care they provide to their residents and an improvement of resident oral health following theoretical and practical support provided by a hygienist (83).

The controlled clinical trial carried out in Sweden included one nursing home as the intervention where oral health instruction was provided by a hygienist, and one nursing home as the control where no oral health instruction was provided. Included in the intervention group was one director of nursing, one registered nurse and 21 nursing assistants (PSWs). The control group had a similar composition as the intervention group with the exception of 28 nursing assistants (PSWs). The organization’s senior staff in the intervention group was required to take a leadership role in the organization of training planned for the nursing assistants (PSWs). Specifically, prior arrangements were made with the intervention group’s director of nursing whereby the hygienist outlined the requirement for the nursing assistants (PSWs) to be available during the study’s three-month timeline: three staff meetings each of two hours in duration; and weekly hands-on sessions provided by a hygienist (83). The weekly meetings (15 minutes each) were led by the hygienist and involved the resident and their respective caregiver (PSW). During the visits, the hygienist provided personalized assistance and recommendations to the caregiver that were specific to the complex needs of the resident (83). In addition to the provision of training, the hygienist provided an oral hygiene prescription that was individualized to the needs of each resident. The prescriptions included specialized devices, methods and products for oral hygiene which could assist the caregiver in their provision of resident oral care (83).

Seleskog, Lindqvist, Wårdh, Engström, Bültzingslöwen report that the training provided to PSWs by a hygienist in the intervention nursing home was beneficial in that the caregiver’s perception of their resident oral care changed (83). Specifically, the caregivers believed that after the training they had a greater ability to persuade residents (who previously resisted oral care) to accepting oral care. As a result, more residents were accepting of oral health care assistance than before the caregiver training. Conversely the authors report an unexpected finding in that the caregivers generally rated their knowledge as inadequate after having had the hygienist-led
training. The authors suggest that these findings highlight the caregivers’ perception of their capabilities as well as a greater understanding of the complexities and limitations of other factors (i.e., the organization’s role and limitations) that impact resident oral health care (83).

According to Seleskog et al., caregivers in LTC facilities have heavy workloads thus it is essential that resident tasks are ranked in order of importance so that the more pressing ones are completed. Furthermore the authors inform that resident oral care is often considered less significant compared to other tasks (83). Seleskog et al. suggest that in order to advance oral health, organizational leadership must encourage, support and display a positive attitude towards the caregiver in their provision of resident oral hygiene (83). One recommendation provided by the authors is to include a SME, such as a dental hygienist, in an interdisciplinary team with a view that they can support, coach and work with the caregiver and resident (83).

2.1.2.1 Delivery methods of oral health care applicable to continuing and LTC settings

As identified above by McKeown, Woodbeck and Lloyd, videos were one, albeit ineffective, method of oral health care delivery to PSWs employed in a LTC facility (5). Conversely another study had positive results following oral health training comprised of lecture, demonstrations by dental professionals, practical training sessions, and a closing video (38). The training received by the staff was well received and significant resident outcomes included: reduced prevalence of oral mucosal disease, reduced angular cheilitis, decreased denture stomatitis, improved denture hygiene, and an increased number of dentures removed before bedtime (38).

A dentist along with the assistance of a dental hygienist conducted the training program in specific LTC facilities. Upon the completion of each training session, the caregiver was given a certificate of completion and each of the participating LTC facilities received a certificate acknowledging participation of their respective care giver staff (38). Each LTC facility was given an educational program that included a videotape, CD-ROM and a coloured pocket book (38). Management and senior LTC staff were motivated to be involved in the study and having their staff receive free of charge oral health training (38). Training sessions each involving groups of six caregivers were approximately 90 minutes during work time. Session activities began with an introductory lecture and discussion of the oral cavity and disease, followed by discussion and demonstrations of oral health care (i.e., tooth brushing, denture care) and oral health aids. Residents with various oral health conditions were invited to speak about their oral
health problems with the caregivers. Additionally, caregivers were given the opportunity to
discuss the problems they encountered while providing resident oral health care (38). The session
concluded with a brief and entertaining video (38).

Literature pertaining to the impact of online oral health educational programs on caregivers
employed in LTC facilities is limited (84, 85). One narrative literature reports that online
programs promoting oral health at LTC facilities are uncommon (84). Barriers to online health
programs include limited staff training; challenges accessing the internet; computer illiteracy,
particularly for older employees; cost; and competing demands in the work place (84, 86, 87).
Findings recommend increased staff training in information and communication technology in
order to support online oral health training (84, 87).

2.1.2.2 Poor oral health

Advances in dentistry and an increased life expectancy have contributed to the tendency of
seniors retaining their teeth for a longer period of time (1-9). The vast majority of seniors
moving into LTC do so with most of their natural dentition (88). In 2009, about 75% of baby
boomers (seniors born between 1946-1964) who transitioned into LTC had the majority of their
natural dentition, a trend expected to increase in the coming years (88). The mouth is an integral
part of the body as it serves many functions including eating, chewing, speaking, and socializing
(3-6, 9-12). An unfortunate reality is that oral hygiene in LTC is insufficient which predisposes
residents to poor yet preventable oral health (2, 4, 6, 7, 10, 13-16, 88).

Oral health concerns reported by residents in LTC include 41%-79% caries (6, 17-22, 24, 25),
66%-74% for gingivitis (6, 18, 24), 32%-49% periodontal needs (6, 18, 19, 23), 36%-51%
xerostomia (dry mouth) (18, 22), 34%-59% non-retentive dentures (18, 22), 5%-17% dental pain
(6, 18, 22, 23) and 3% gingival pain (6, 19).

Inadequate resident oral health care can manifest in oral disease that pose significant physical,
social, financial and psychological challenges to the resident and in part the caregivers (2, 6, 14-
16, 26-29). Deleterious outcomes can include malnutrition, decreased quality of life, greater
reliance on the caregiver for activities of daily living, increased costs for oral and general health,
and reduced overall health including the acquisition of pneumonia (2, 6, 14-16, 26-29).

2.1.2.3 Sequelae of pathogenic bacteria in the oral cavity
Poor oral hygiene leads to pathologic bacteria that can proliferate and, in addition to increased disease in the oral cavity, can contribute to the overall health of the individual (14, 15, 27, 29). Pneumonia in LTC residence, also termed as “nursing home-acquired pneumonia”, is the leading cause of mortality among residents (16). Pneumonia is a sequela of pathogenic bacteria originating in the oral cavity that transfers into the lungs (14, 15, 27, 29). Pathologic bacteria residing within the oral cavity, such as on the tongue or calculus on teeth or dentures, that is aspirated can develop into aspiration pneumonia (14, 15, 29). Pneumonia can compromise the health of the elderly and lead to a reduced mortality particularly in those who are frail (14-16, 29).

2.2 Conclusion

Geriatric residents’ rely on PSWs for the activities of daily living including oral hygiene. Poor oral hygiene contributes to poor health and an increased risk of disease such as pneumonia (14, 15, 27, 29). Resident behavioural, cognitive and physical complexities challenge PSWs in their provision of oral health care. As demonstrated, previous studies suggest PSWs have inadequate training to properly address these complexities. Based on the literature, the inclusion of an oral health SME (i.e., RDH) who is able to help the PSW navigate these challenges can positively impact the PSWs’ resident oral health care. Approaches to training that are aligned with the PSWs’ preferred learning method(s) and environment could prove beneficial for the advancement of resident oral health care (6, 89).

A possible hinderance to PSWs’ training, however, is the PSW’s perception of emotionally strained relationships and unfavourable social interactions with nurses which can impact the resident’s oral health. Personal support workers may not feel comfortable approaching the nurse with resident oral health concerns due to the assumption that they will not be taken seriously or fear of adding to the nurses already heavy work load (6). As demonstrated in the literature, the inclusion of an oral health SME as a member of an interdisciplinary team can advance relationships with caregiver staff (4). A SME has specialized training in oral health care and would be exclusively available to collaborate with the PSW and the resident thereby providing individualized support.

The literature does not fully address accessibility and cost-efficiency of educational methods within health care settings, such as online learning (6, 89). Furthermore, organizational factors
that impact the PSW’s oral health knowledge and beliefs are limited at all levels and demand further examination (4, 6, 89). Specifically, organizational guidelines describing of what constitutes adequate oral hygiene and its frequency is lacking. So too is the support that is required for caregivers to adequately provide such care. Change to organizational factors in QI initiatives may prove more effective than implementing typical educational methods alone (6, 73-75, 78).

2.2.1 Concluding Remarks

The implementation of appropriate learning methods and conditions is fundamental to ensuring PSWs are adequately trained to care for the daily oral health care needs of LTC residents. It is unknown if an employer mandated on-line education module will impact the PSWs’ knowledge and beliefs regarding resident oral health care. The literature suggests that although education has the potential to improve PSWs’ knowledge and beliefs about oral health care, there may be other factors that can impact change.
Chapter 3 Aim of the Study

3 Objectives and Hypotheses

3.1 Objectives

3.1.1 Quantitative

To measure changes in PSWs’ knowledge and beliefs in their provision of resident oral health care after completing the online oral health education module.

3.1.2 Qualitative

To understand PSWs’ perceptions of their knowledge and beliefs in their provision of resident oral health after completing the online oral health education module.

3.1.3 Mixed Methods

To measure and understand the impact the online oral health education module has on the PSWs’ provision of oral health care for residents in a LTC facility. (90)

3.2 Central Research Questions

3.2.1 Null Hypothesis

Personal support workers employed at a LTC facility for geriatric care who consent to participate in the study will not experience any changes in knowledge and beliefs regarding oral health and its provision to residents following the mandated oral health online education module.

3.2.2 Alternate Hypothesis

Personal support workers employed at a LTC facility for geriatric care who consent to participate in the study will experience changes in knowledge and beliefs regarding oral health and its provision to residents following the mandated oral health online education module.
Chapter 4 Conceptual Model

4 Overview

A conceptual model is a visual construct of the concepts (i.e., theories, models, best practices) emerging from the literature that contribute to the understanding of the research (91, 92). Qualitatively, this is considered a priori and based on the researcher’s assumptions of the field of study (91, 92). Quantitatively, the conceptual model contributes to the development of the hypothesis (92). Components of the model are explored and tested during the study and subsequently validated, strengthened or invalidated (92).

This study’s conceptual model depicts the internal and external factors of PSWs that impact daily oral health care of LTC residents, as well as resident factors that impact the oral care they receive. The conceptual model was developed by the Principal Investigator (PI) (DP) of this study and supported by the literature (Figure 3) (6, 93, 94). Initial consideration of the factors was based on the PI’s previous experience as a student nurse and later a registered nurse who trained/worked in two-medium sized LTC facilities in the cities of London and Burlington, Ontario, Canada. Furthermore, the PI is a dentist (Doctor of Dental Surgery) and currently completing the University of Toronto’s Master of Science Dental Public Health Program. The literature was subsequently reviewed and compared with the PI’s personal experience (66, 67). The conceptual model is based on the PI’s personal experience that is supported by the literature (93, 94).

Based on the conceptual model, PSWs are influenced by a myriad of internal and external factors which may impact the care, specifically oral hygiene residents receive. Internal factors possessed by the PSW may include: attitude, knowledge, behaviour, beliefs, culture, values, ethics, motivation, and experience. External factors may include: time, availability, support, resources, training, patient compliance, patient abilities, patient health, patient cognition, job description, motivation, expectations, accountability, and other obstacles. Both internal and external factors may impact resident oral health care and contribute to their overall intraoral status. Patient-centered outcomes may include those related to: pain status (having pain or being pain-free), function, social involvement, health status, speech ability, nutrition, esthetics, confidence, and quality of life.
Furthermore, in an effort to augment the validity of the findings merits a mixed methods approach, discussed in Chapter 5 (95).
Chapter 5 Research Methodology

5 Study Design

This mixed methods study was carried out as part of a QI project at an over 400-bed LTC facility for geriatric care in a metropolitan city in Ontario, Canada. The LTC facility provides a full-range of resident-specific care for those who are minimally dependent to the majority of residents who are fully functionally dependent on the PSW for their activities of daily living. Many of the residents have complex needs as they are medically compromised, behaviourally challenged and/or cognitively impaired.

The overarching QI Project commenced the 1st of September 2017. This study commenced from October 2017 and concluded on the 31st of August 2018 in order to align with the original LTC’s overarching QI Project timeline. Figure 4 depicts this study’s timeline. The LTC’s Research Ethics Board (REB) approved the overarching QI Project on the 6th of February 2018.

Given that the LTC is a component of the Toronto Academic Health Science Network (TAHSN), the University of Toronto’s REB requirement for the study included an administrative review which was completed on the 5th of March 2018.

The premise of the study is to better understand PSW’s knowledge and beliefs regarding their provision of oral hygiene to residents in a LTC facility, both before and after an employer mandated online oral health educational module and trial resident referral process. The online component contained an oral health training module along with various surveys. Focus groups and one-on-one interviews with PSWs, as well as trialing a new resident referral process, followed the online component.

The study was intended to follow an explanatory sequential mixed methods design. Due to the delayed release of quantitative data and in conjunction with the scheduling of focus groups and interviews, a convergent study design was adopted in June 2018. This design provides a purposeful qualitative sample, whereby saturation of themes is achieved. Saturation is a criteria used in qualitative research that identifies when the collection and/or the analysis of data can be stopped (96). Saturation is reached when responses from the participants are repetitive and no new data are introduced during the discussions (95, 96).
ORAL HEALTH EDUCATION OF PERSONAL SUPPORT WORKERS

Based on the REB, twenty-five PSWs were to participate in focus groups. Specifically, five qualitative face-to-face focus groups of PSWs, each consisting of five participants, were initially scheduled for 90 minutes; these were to be sequentially carried out in May 2018 following quantitative data analysis (6, 97).

Recommendations pertaining to the content for the online educational session, as well as quantitative questions for the online pre- and post- and demographic surveys and qualitative focus group probing questions, were prepared and submitted to the QI project (6, 98). Examples of questions and recommendations submitted are included in Appendix A.

Several one-on-one interviews with primary moderator and PSWs were considered with a view of trialing probing questions prior to use in the focus groups, however, a number of constraints prevented these trials.

In addition to the online oral health training module, the QI Project trialed a new approach to resident oral health referral in the LTC facility. The current approach of referring a resident who has been identified by a PSW as having an oral health concern involves the PSW notifying the nurse who notifies a medical doctor who refers to a dentist who then requests the services of a dental hygienist, as applicable (Figure 5A).

The QI Project’s trialed approach continues to involve the PSW notifying the nurse of resident oral health care concerns, however the remaining steps flow in reverse to the current model in that the nurse reports concerns directly to the self-initiated dental hygienist (SIDH) by means of a link in the resident’s health electronic chart. The SIDH has the capacity to assess and treat patients accordingly within their scope of practice in the comfort of the senior’s residence by use of mobile dental equipment. The SIDH is to refer the resident to a dentist employed within the LTC facility who can assess and treat and/or refer to a medical doctor as required (Figure 5B). Aspects of this new model were incorporated into the qualitative section of the study.

Based on the experiences voiced by a Research Assistant (RA) of the overarching QI Project who carried out one-on-one interviews with registered nurses, the nurses’ recall of the online oral health module was less than ideal. It was reported that the two-or-more month delay from when the nurses completed the online module until their interviews resulted in a loss of recall. The lack of recall was reportedly coupled with the numerous online modules caregivers are to carry out on a regular basis. It was recommended that participants (i.e., nurses, PSWs) receive an overview
via a PowerPoint presentation of the module at the beginning of all focus group and one-on-one interview sessions. For this reason, a PowerPoint presentation was carried out at the beginning of all PSW focus groups and one-on-one interviews. The intent of the presentation was to refresh the PSWs’ memory of the online module before the session. The PowerPoint presentation included an overview of all online components with a focus on the oral health educational module by way of screenshots.

The original plan afforded the PSW time and resident coverage during the work shift in order to participate in focus group activities. In reality, PSWs were not permitted to attend focus groups during their work time. They typically volunteered their time by participating after their eight-hour work shift or occasionally during their scheduled work breaks. The study relied on the PSW’s non-work availability which impacted the scheduling in terms of number of participants available at one given time. Due to the constraints, focus groups initially consisted of two to four PSWs per session. As time passed, it became challenging to book multiple PSWs in a focus group. The sixth focus group had only one of the two scheduled PSWs present to the session. As a result, a REB amendment was requested and approved, permitting for individual one-on-one interviews of the remaining consented PSWs. A total of twenty-three PSWs participated in focus groups or one-on-one interviews as two who initially consented were unable to participate for personal reasons.

As per the original REB, no compensation was to be made available for this study. A REB amendment resulted in the provision of incentives for participants including a $15 honourarium, and light refreshments.

The audio files were transcribed by students who volunteered at the partner LTC facility and reviewed by the PI and the RA.

5.1 Mixed Methodology

A convergent mixed method study was conducted in combination with the internal QI Oral Health Education for PSWs employed at the LTC facility (Figure 6) (90). The mixed methodology study design includes quantitative data collection and analysis in conjunction with qualitative data collection and analysis. The convergent study design is based on the concurrent yet independent collection and analysis of each data set followed by their amalgamation and
subsequent comparison (90). The inclusion of both types of data sets allow for triangulation (assessment from varying perspectives) in that development of a more comprehensive interpretation of the data can draw from the strengths of one data set while counterbalancing the weakness of the other data set (95, 99).

The PI’s committee consisting of the supervisor (HL), two committee members (CD, JL), as well as the PI of the LTC QI study and the LTC clinic manager were informally (email and discussions) and formally consulted regarding the mixed methods themes during the University of Toronto’s graduate program committee meetings. Two additional presentations reviewing the overall project including the themes were subsequently carried out for applicable LTC staff (RAs, program manager, senior clinic manager, education program developers). Themes linking quantitative and qualitative data were considered to be: convergent when both data sets were in agreement; divergent when the data sets were opposing; and unique when data sets were incongruent (100).

5.2 Quantitative Methods

5.2.1 Surveys

The quantitative study consisted of six sequentially ordered parts which were accessed on one of the LTC’s web-based learning management systems. The oral health online program included the following: Demographic Questionnaire; Pre-Oral Health Training Module Survey; Resident Mouth Care for Staff in Long-Term Care Training Module; Post-Oral Health Training Session Survey; Post-Education Session – Staff Satisfaction Feedback Survey; and a Post-Education Consent Request for Release of Information. Additionally an Oral Health Study Withdrawal Survey was included.

5.2.1.1 Demographic Questionnaire

The Demographic Questionnaire (Appendix B) comprised of nine closed-ended questions about: participant’s age, sex, work experience, education, work shift, employment status, occupation (survey for nurses and PSWs), primary language, and resident’s functional capacity. All questions with the exception of the one pertaining to primary language were multiple choice. The response to the question regarding primary language was to be typed in.
The term resident functional capacity relates to the amount of care that is required for activities of daily living. Residents live in one of three sections (pods) on six floors. The higher the floor, the reduced functional capacity a resident has resulting in a greater need for caregiver assistance. Residents who live in one of the pods on the lowest floor have a high functional capacity thus reduced reliance on the caregiver. Conversely, residents living on the highest floor have a limited functional capacity requiring full assistance from the PSW.

Characteristics such as age, work experience, and education were classified into five-year groupings.

5.2.1.2 The Pre-Oral Health Training Module Survey

The Pre-Oral Health Training Module Survey (Appendix C) elicited information about the PSW’s knowledge and beliefs of resident oral health care. It is comprised of 11 questions including a mixture of multiple choice, Likert-type rating scale and an option for additional comments. The three Likert-type questions related to confidence and usefulness were rated as 1 being the ‘least’ confident and useful while 10 was ‘extremely’ confident and useful, respectively, using increments of one.

5.2.1.3 The Online Oral Health Education Module

An interactive online oral health education module was developed for direct care providers (PSWs and nurses). The module includes general oral health terms, a discussion of conditions and practices, as well as interactive case scenarios and questions relevant to the material. Specifics include: appropriate oral hygiene routines and techniques for the provision of oral health care for a geriatric population with physical and cognitive limitations; and the identification of oral health concerns and the requirement for resident referral.

5.2.1.4 Post-Oral Health Training Session Survey

The Post-Oral Health Training Session Survey (Appendix D) was to be completed immediately following the viewing of the interactive web-based oral health education module with the intention to obtain information about the PSW’s knowledge and beliefs. As with the Pre-Oral Health Training Module Survey, the majority of Post-Oral Health Module Survey questions are comprised of 12 multiple choice and Likert-type questions including two questions with accompanying comments sections. Similar to the pre-training Likert-type responses, the post-
training responses were rated on a scale of 1-10, where 1 was rated ‘least’ and 10 was ‘extremely’ of the applicable factor, using increments of one.

5.2.1.5 Post-Education Session-Staff Satisfaction Feedback Survey

The fifth section includes the Post-Education Session-Staff Satisfaction Feedback Survey (Appendix E). A total of 13 questions posed elicited feedback from PSWs regarding their satisfaction with the education session. Each question was to be rated on a Likert scale as ‘strongly agree’, ‘agree’, ‘neutral’, ‘disagree’, or ‘strongly disagree’.

5.2.1.6 Post-Education Information and Consent Request for Release of Information

Another online component consists of the Post-Education Consent Request for Release of Information (Appendix F) for PSW involvement in the study. All PSW data were made available to the overarching QI Project while participation in the PI’s study required the PSWs’ voluntary consent. The consent form explained the study and request for consent for all PSWs online training data including time-lines of each section and contact information of the PI. The consent was a two-part process requiring the PSW to check the box, agreeing to be part of the study as well as typing their name on the form.

There are no physical risks associated with participation in this study. There is a potential risk of a breach of confidentiality when personal information such as names is distributed. Procedures are in place to safeguard personal information; details are available in the Records and Confidentiality section (Appendix F).

5.2.1.7 Oral Health Study Withdrawal Survey

A PSW who decides to withdraw from the study can do so at any time by submitting the Oral Health Study Withdrawal Survey (Appendix G). To date, no forms have been received.

5.2.2 Data Collection

Quantitative data collection commenced on the 13th of February 2018 and concluded on the 2nd of April 2018. Of the PSWs who completed the training, 58 PSWs consented to be part of the study by having checked the applicable box and typing their name as required, depicted in course completion consent mapping (Figure 8). There were some PSWs who indicated their desire to
participate in the study as annotated on their consent form in that they checked the box which represented their intentions but did not type their name thus they were not readily included. An attempt was made to contact these individuals via phone by PI (DP) with assistance from a RA, employed at a partnered organization, to ascertain whether or not they were interested in consenting to the study. Of the 35 PSWs who were phoned, 29 gave verbal consent to participate in the study while six did not consent. One PSW was consented via face-to-face by the RA.

Challenges were reported by the respective technical consultants in that the learning management system used is incapable of linking pre- and post- survey results to one person. For this reason, the linking process was manually completed by a RA. The consolidated data representing a total of 88 consented PSWs were cleaned and employee identifying data delinked by a RA. The PI reviewed all data and discrepancies were resolved through discussion with the RA. Following data verification, data were released to the PI’s supervisor who subsequently permitted the PI’s access. All data were transferred to the PI’s laptop computer into a password protected file.

Start and end time entries of each section were recorded which permitted the PI to address if PSWs carried out multiple attempts of the program. Multiple attempts may have been due to the PSWs wanting to improve their answers to survey questions; however, the study desired to assess immediate answers, not practiced responses. Time entries were referenced to reconcile data when PSWs completed a section multiple times. The first entry was used while the others were manually removed from the data set thereby permitting one entry of each section per each PSW.

5.2.3 Data Analysis

Data analysis of the pre/post-tests was completed July 2018 under the direction of Dr. H.P Lawrence, supervisor of the study. IBM SPSS Statistics version 24, developed by IBM Corporation, was the statistical software used for quantitative analysis. Original de-identified data were divided into three sets and provided to PI at different times as they became available. Once all data were received, they were merged together and unnecessary rows and columns, such as extra entries that were created when PSWs attempted the surveys more than once, were removed. A codebook was prepared.
Demographic data are presented in Table 4. Pre- and post-survey data have been divided into three tables: multiple choice pre-and-post comparison data are presented in Table 5; Likert-scale pre-and-post comparison data are presented in Table 6A; and Likert-scale post-oral health training session data are presented in Table 6B. Feedback data are presented in Table 7.

Ordinal data (i.e., scale ranging from 1 to 10) pre- and post-oral health training session were calculated by mean difference between the two surveys and probability (p) value (significance) using the Paired Samples t-Test (parametric), which was followed by the Wilcoxon Signed Rank Test (non-parametric) due to skewedness of data.

Nominal data utilized the McNemar Test (non-parametric) for differences in paired proportions. The threshold for statistically significant was set at $p$ less or equal to 0.05 (5% significance level).

While this study involved those PSWs who consented, the mandated QI project included all PSWs. It was anticipated that all PSWs would provide consent therefore no sample size was calculated due to the involvement of the entire population.

5.3 Qualitative Methods

Qualitative research was informed by a social constructionist perspective, whereby reality is considered multiple and variation in the experiences of individuals is important to uncover (101-103). The qualitative research component was exploratory in nature which subjectively described the experiences and perceptions of the PSWs who participated in the focus groups and one-on-one interviews (101, 103). This component was not intended to be highly interpretive and did not follow traditional enquiries including phenomenology or grounded theory. Instead, the aim was for a relatively low level of interpretation to retain the concerns and language used by participants (101, 103).

In an effort to facilitate focus group moderation that generates valuable data, the PI, along with other identified moderators of PSWs, nurses and family members participated in two training and practice sessions, each approximately two hours in duration at the LTC facility which was conducted by a senior RA at the LTC facility. Additionally, a one-hour qualitative coding and analysis training session and a one-hour qualitative rigour and reporting session were provided by a project manager and senior RA at the LTC facility.
Throughout the study, the PI consulted with a thesis committee member (CD) who offered guidance pertaining to qualitative research. Discussion prior to the study centered around modification of the open-ended questions related to PSW’s previous oral health care training as well as the new referral approach to oral health care delivery, specifically the SIDH, for residents in the LTC facility. Following data collection, guidance centered around the process of analysis and the generation of themes.

5.3.1 Reflexive notes of Primary Investigator

These notes regarding the PI are an attempt to situate the reader about the perspective from which this thesis is being written. My background is varied both academically and by occupation. My academic training led to careers in nursing, and dentistry (Doctor of Dental Surgery).

My vocational experience related to this study was my training as a student nurse in a medium-sized LTC facility. Later as a registered nurse, I was employed in several institutions including a medium-sized LTC facility, and an oncology ward with a large senior population. My research experience is limited to this current study. These varied social positions have exposed me to the potential for poor oral health in the LTC population. Moreover, I am aware of the requirement for different kinds of knowledge to inform patient care. My roles inside and outside the study context form a point of departure for the study and a reflexive starting point to discovery.

5.3.2 Recruitment of PSWs

In an effort to recruit PSWs, the RA visited all clinical floors of the LTC prior to and after work shifts over the course of several weeks. The RA personally met with PSWs who had completed or was about to start their work shift. The meeting place was by the main elevators of each floor and not in the PSWs’ place of duty. The RA provided information about the focus groups as per the Introductory Scripts for the Oral Health Study, Appendix H. Personal support workers interested in participating in a focus group were required to have completed the oral health care online training module and provide consent for focus group or one-on-one interview participation by completing the Consent Form for Focus Groups and Interviews, Appendix I (6, 90, 98).
Comprehensive information about the project was provided to the participant in the Consent Form for Focus Groups and Interviews, Appendix I. Details included: participant eligibility criteria, purpose of the study, methods and procedures, safety and security, potential benefits of the study, right to ask questions and withdraw from the study, and the Agreement to Participate (consent).

5.3.3 Data Collection

Personal support worker focus groups were planned for a purposive sample. Seven semi-structured PSW focus groups and four one-on-one interviews were led by the PI and accompanied by a RA employed by a partner of the LTC facility. Each focus group consisted of two to four PSWs and lasted, on average, 37 minutes and 49 seconds. The one-on-one interviews lasted, on average, 25 minutes. Prior to the formal focus group/interview, each participant was to complete an Oral Health Focus Group Demographics Questionnaire, Appendix J.

Upon arriving for their focus group or interview session, PSW(s) were requested to complete the Oral Health Focus Group Demographics Questionnaire, Appendix J. Forms were collected and at the end of each session were secured by the RA. Prior to the session, participant(s) were given a $15.00 cash honourium and required to sign two receipts; one which they were given, and the other retained by the designated RA.

A PowerPoint presentation was carried out by the RA before the commencement of each focus group or one-on-one interview. The presentation, approximately eight minutes in length, provided an overview of the online oral health module, which was the basis for the session. Following the presentation, PSWs were informally advised of the conditions of the session including the intention and purpose of audio recording, the anticipated time commitment, availability of refreshments (food and beverages), as well an opportunity was given for questions. Once all questions were answered, two recording devices were activated by the RA who placed them in optimal locations to the participants and PI. The PI typically asked the questions, while the RA asked some questions and primarily took notes in the unlikely event the audio recordings were inaudible or became inoperable.

The PI followed the Oral Hygiene – Education Feedback (Staff Focus Group 1) narrative, Appendix K. Each recorded session began with the PI reading, word for word, the “Research
Assistant” prepared narrative regarding the activity. To reduce the power structure between the role of the interviewer and participant, the PI intentionally self-identified as a ‘student’ and did not include education background or occupation (6). The prepared narrative was adapted to read as: “My name is Debra and I am a student. I am accompanied by (name of RA) who is a partner of the LTC facility.”

The introductory narrative was followed by the listed open-ended as well as additional questions that were session dependent. The RA would be asked if there were any additional comments or questions for the participants, typically near the end of the session.

Upon completion of each session, the audio recordings were stopped and shortly after transferred onto a dedicated computer memory device and safeguarded by a RA.

5.3.4 Data Analysis

Thematic analysis was the method used to divide, group and reconnect features of the dataset followed by the interpretation (104). Qualitative data analysis followed four fundamental steps including: immersion in the data, coding, category creation, and theme identification (101). Figure 7 depicts the four step process which this study followed (101). Data analysis was dynamic and did not always follow a linear approach (101).

5.3.4.1 Data Immersion

The first step in qualitative analysis is data immersion whereby the researcher becomes fully engaged in the data (101). The PI was involved throughout the entire study and was immersed in the data as the primary interviewer for the PSW focus groups and three of the four, one-on-one interviews. Notes including key points and new information were taken throughout each session and reviewed afterwards. Additional relevant information pertained to the challenges experienced and accommodations required in the scheduling of participants for their focus group or one-on-one interview sessions during their non-working availability.

Focus group and one-on-one interview audio files were initially transcribed/coded by three university students who volunteer at the LTC facility. One person who applied for a volunteer transcription position and interviewed by the PI and the RA was deemed suitable and subsequently completed all institutional requirements and granted authorization to volunteer. A
total of four volunteers transcribed the audio files. Transcription guidance was provided to volunteers by RAs employed by a partner to the LTC facility.

The transcription process was carried out on three separate levels. First, the volunteers with the use of personal headsets transcribed their assigned audio files in the designated volunteer office using desktop computers. A computer memory device containing the applicable audio files was distributed by a RA to each volunteer who accessed files and saved their transcribed text documents using Microsoft Word.

Second, the PI reviewed all transcribed files by actively listening to the audio recordings and reading the corresponding Word documents while tracking all changes. In addition to reviewing and adjusting text accuracy, employee and interviewer identifying data were removed.

For security purposes, all memory sticks were obtained from the volunteer or PI as required and returned at the end of the day to one of the designated RAs employed with a partner to the LTC facility. Due to unforeseen circumstances, there were sections of two separate focus group/interview sessions that were transcribed by the PI. These sections were subsequently reviewed and corrected for accuracy by one of the volunteer transcriptionist.

Third, all transcripts were reviewed by a RA who adjusted the text accordingly and inserted participant numbers. Following the final review, when the Word document was deemed complete, it was released by a RA to the PI. With the use of a RA’s designated computer memory device, the PI transferred the Word files to her laptop and stored them in a password protected file.

5.3.4.2 Coding

The second step of qualitative data analysis is coding (101). Coding is the process of arranging the interview transcript into sections which are identified by a label (101). According to Ryan and Russell, “[i]t forces the researcher to begin to make judgments and tag blocks of transcripts” (101).

Paper analysis was carried out in conjunction with NVivo 12, a qualitative data analysis computer software package created by QSR International, located in Melbourne, Australia, screenshot Appendix L. The PI completed several NVivo learning opportunities such as those that were self-study as well as one formal course. The Fundamentals for NVivo 12 for Mac
Online started the 13th of August 2018 and finished the 21st of September 2018 for which a course certificate was granted.

Initial coding of transcripts began line-by-line in order to seek out the actions and processes of the data with the intent to focus concepts (97). Data was coded by classifying/sorting transcript data and assigning descriptive labels to words, statements or paragraphs expressed by the PSWs (95). Codes were reviewed and adjusted as required throughout the process.

5.3.4.3 Creation of Categories

The third step of qualitative data analysis is the creation of categories (101). The creation of descriptive categories involved further review of the coded data leading to a deeper and more detailed assessment (101). Related codes were grouped together and identified by an encompassing category (101). Categories were further developed and refined by a process of constant comparison to identify similarities and differences within and between the coded statements for each category. This step permitted an active analysis and the opportunity to reflect upon the codes developed in the prior step. (101).

5.3.4.4 Identification of Themes

The fourth and final step of qualitative data analysis is the identification of themes (101). Unlike categories that remain descriptive, themes provide greater insight of the subject in the form of an explanation or interpretation (101). Themes provide greater evidence of the data when compared to categories (101).

Themes emerged from the interpretation of the categories. Initial discussions of emerging themes took place with committee members once qualitative saturation was reached through focus groups/interviews. Themes were further discussed during informal discussions and a meeting between PI and the RA who co-moderated focus groups and interviews. Table 2 is an example of the process of data analysis which led to the emergence of a theme.

5.4 Convergent Design

The convergent mixed methods design blends the quantitative and qualitative results derived from their respective data analyses (90). Quantitative data presents trends and relationships whereas qualitative data provides detailed perspectives of the participants (90). The merging of
both results offers a qualitative and quantitative perspective of the problem as well as a combined outlook which could be examined from multiple angles and points of view (90). The merged results provide a more comprehensive interpretation of the data than each separate dataset (90, 102). Various perspectives can be advanced while one dataset can be supported with the other (90, 102).

The procedure involves (90):

1. Independent collection and analysis of quantitative and qualitative data;
2. A side-by-side comparison of both datasets whereby interpretations of each dataset are considered together and discussed with committee members and LTC staff. The three dataset results are to be jointly displayed by theme in tabular format.
3. Confirmation and explanation of the convergent results derived from the two datasets. The impact quantitative and qualitative datasets have on each other (i.e., converge, diverge or unique) by theme are presented in the abovementioned table.

The convergence method provides a means to understand the two datasets together thereby viewing the problem from multiple perspectives and on a more global scale when compared to one dataset (90, 102). The convergent design is considered a single-phase because the quantitative and qualitative data are concurrently collected (Figure 6) (90).

5.5 Literature Reviews

Supplemental literature searches are to be conducted during data analysis in order to advance analytical categories. This allowed for development of concepts and categories that were unknown during the initial literature search (97).

5.6 Ethical Considerations

The Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans Course on Research Ethics (TCPS 2: Core) was successfully completed by the PI who was awarded a Certificate of Completion on the 4th of September 2017. Additionally applicable LTC staff and volunteers successfully completed TCPS 2: Core.
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The LTC’s REB received approval for the overarching QI Project on the 6th of February 2018. As the LTC facility is part of the TAHSN, an administrative review by the REB at the University of Toronto was required for the study. An Administrative Review was submitted and approved on the 5th of March 2018.

Consent for information from the PSWs, specifically data for use in this study, was requested through the online education training program (Appendix F). Employees who had questions or initially consent to participate and later changed their minds had a right to ask questions and withdraw as was stated in the Post-Education Consent Request for Release of Information (Appendix G). Caregivers were advised that their decision to withdraw from the study “will not affect any current or future care management, residency, and/or employment status at” the LTC facility. Additionally, the PI’s contact information was provided should participants wish additional information.

All participant identifying information obtained from the quantitative data was delinked prior to use by the PI as was articulated to the prospective participant within the Consent Form (Appendix F). Personnel support workers who agree to participate in the focus groups or interviews completed a Qualitative Study Consent Form (Appendix I). Participant’s identifying information was delinked following transcription (25). Personal support workers who wish to withdraw after having consented to be part of the study can do so without reprisal by completing the Oral Health Study Withdrawal Survey (Appendix G).

The potential risks of the study were relatively small. There were no known physical risks related with study participation. The potential risk of loss of confidentiality is possible given names and other personal information was disclosed. All personal data were safeguarded as explained in the Records and Confidentiality section (Appendix F).

Institution Requirements for Students

Prior to academic placements at the LTC facility, all students are to register and create an online account in order to complete mandatory online training modules. All training requirements involving 10 mandated modules were completed by the PI. Another requirement included a Vulnerable Sector Screening Check which the PI obtained in March 2018.
Chapter 6 Study Results

6 Introduction

Study results are divided into the three components including quantitative, qualitative and mixed methods. As this study is a component of a larger QI Project, findings should be interpreted in a local context and not be generalized to other PSWs in LTC facilities.

6.1 Quantitative Study Results

Quantitative study results include data from the demographic survey, pre- and post-module surveys, and the feedback survey. A sample size calculation is included.

6.1.1 Demographic Survey

The demographic survey consisted of eight questions posed to the PSWs employed in one LTC facility. Questions pertained to age, sex, work experience, education, work shift, employment status, primary language, and functional capacity of typically assigned residents. Non-response rates across all categories ranged from 5.7% to 56.0%. Data for two PSWs were missing (2.3%) in that their demographic surveys were not completed however the online oral health training and subsequent surveys were completed. Results are consolidated in Table 4.

A total of 100 of a possible 246 PSWs initially indicated that they consent to participate in this study. The online consent process was a two-part process involving the checking of a box and typing of name (signature). Both requirements for consent were completed by 58 of the 100 PSWs. The remaining PSWs had checked the box indicating their consent but did not include their name. As a result, an attempt was made to contact those individuals who provided partial consent which was done via phone. A total of 88 PSWs consented to participate in this study. The pre- and post- survey analyses were based on 76 PSWs rather than 88 PSWs due to unavailability of all data (i.e. “missing”, “prefer not to answer”). See Figure 8 for mapping of consenting PSWs.
6.1.1.1 Age
The majority (61.4%) of PSWs are between 40-59 years of age. Those under 40 years comprised 15.9% of the sample, while those over 60 years made up an additional 9.1%. Over 13% of the sample did not provide their age (Table 4).

6.1.1.2 Sex
Approximately 80% of PSWs are female and 13% male, while 6% did not identify their gender.

6.1.1.3 Work Experience
One quarter of PSWs have 16-20 years (26.1%) or 6-10 years (23.9%) of work experience, while 1/6 of the population have less than six years (15.9%), or more than 20 years (15.9%) of experience. PSW work experience is varied.

6.1.1.4 Education
One third of the PSWs has 11-15 years (33.0%), while another third has 16 or more years (34.1%) of education. The majority of PSWs who responded have high school or post-secondary education. The non-response-rate to this question was the second highest (20.5%) of all demographic questions.

6.1.1.5 Work Shift
Almost half of PSWs work the day shift (47.7%), whereas an approximate quarter (23.9%) work the evening shift. Night shift and all shift coverage are 13.6% and 6.8% respectively. The majority of resident care is provided during the day shift.

6.1.1.6 Employment Status
Employment is divided between part-time (48.9%) and full-time (45.5%) workers. No respondents reported as being on-call. Half of PSWs provide consistent, full-time resident care.

6.1.1.7 Language
Personal support workers reported their primary language as: 26.1% English, 9.1% Filipino/Tagalog, while the remaining were blocked due to the low percentage of response and
concern of identification of the individuals. Over half of the sample (56%) did not provide a response, resulting in the highest non-response rate of all demographic questions.

6.1.1.8 Resident’s Functional Capacity

The resident’s functional capacity indicates the level of need for assistance provided by the PSW. The proportion of residents needing full, moderate and minimal assistance is 71.6%, 6.8%, and 3.4%, respectively. The non-response rate was 15.9%. The majority of PSWs are responsible to provide full care to residents.

6.1.2 Pre and Post Oral Health Care Survey

Two types of survey questions posed were multiple choice and Likert scale. Due to incomplete or non-evaluable survey data, 76 of the 88 available PSWs were considered for comparative purposes.

6.1.2.1 Multiple Choice

Eight multiple choice survey questions pertaining to PSW’s oral health knowledge and beliefs were repeated and used for comparison before and after the online module, Table 5. Questions pertained to:

- Categories used by PSWs to assess residents oral health on a daily basis;
- Steps to clean a set of dentures of the medically compromised resident;
- Daily frequency of resident mouth care;
- Best method for removing oral bacterial plaque;
- The necessity for PSWs to use personal protective equipment (PPE);
- The correct way to approach a resident with dementia;
- The selection of an incorrect mouth care response; and
- Understanding the appearance of dental caries.

The McNemar test for differences in paired proportions was used. The correct answer for each question is highlighted in Table 5. Two of the knowledge-based questions generated statistically significant results \((p \leq 0.05)\). Five of the other paired questions had only a slight improvement but not statistically significant as per the McNemar test. Many of the pre-survey responses were well responded to thus minimal improvement could be achieved.
One question pertaining to provider awareness of the oral health assessment tool (OHAT) was solely posed in the post-oral health module survey (Question IX). Less than half of the PSWs (45.3%) were aware of the OHAT and even less (18.6%) had used it. Personal support workers are a non-regulated caregiver staff thus are not responsible for the OHAT.

6.1.2.1.1 Frequency of daily oral cleaning

Response to the following survey question was statistically significant: “How many times a day should you clean a resident’s mouth?” Multiple choice responses include: 0, 1, 2, 3. The correct response is 2; furthermore a response of 3 acknowledges that multiple cleanings are important. After having completed the online module, PSWs had a 21.1% (n=16) increase in knowledge when responding to the question regarding the recommended daily frequency of resident oral health care ($p = 0.001$), Figure 9. The McNemar’s odds ratio of 8 indicates that after having completed the online module PSWs were eight times more likely to learn the correct frequency of resident mouth care then not having completed it, Figure 9.

6.1.2.1.2 Requirement to wear personal protective equipment

Response to the following survey was also statistically significant: “It is necessary to wear proper personal protective equipment including gloves and a mask when providing mouth care to protect yourself and the resident?” The response options include: true or false. The correct response is true. The PSWs had a 19.7% increase in knowledge when responding to a true or false question regarding the use of PPE ($p < 0.001$), Figure 10. The McNemar’s odds ratio could not be calculated, Figure 10.

6.1.2.2 Likert-Scale

Four Likert-scale questions were posed regarding the PSWs’ beliefs: two were repeated and used for comparison before and after the online oral health module; and two were posed only in the post-oral health module survey. The repeated questions pertained to PSWs’ confidence levels and were analyzed using the Paired Samples T-Test (parametric test) and the Wilcoxon Signed Ranks Test (non-parametric test), Table 6A. Both repeated question results were statistically significant ($p \leq 0.05$). The non-paired questions pertained to the PSWs’ comfort level and module usefulness, Table 6B.

6.1.2.3 Comfort in ability to provide oral health care
Personal support workers (n=76) indicated that they are very comfortable in their ability to provide resident oral health care after having completed the online oral health training (pre- (8.53) and post-test (8.82) survey results; possible range 1 to 10 with 10 being extremely confident). The mean difference is 0.289 and the results are statistically significant (p ≤ 0.05), Figure 11.

6.1.2.4 Confidence correctly identifying oral health concerns based on resident’s oral health condition

Personal support workers (n=76) revealed that they are very confident in their ability to correctly identify oral health concerns based on the resident’s oral health condition (pre- (7.67) and post-test (8.59) survey results. The mean difference is 0.921 and the results are statistically significant (p<0.001), Figure 12.

6.1.2.5 Comfort to refer resident oral health concerns to a nurse

Post-test (8.92) survey results (n=78) rated PSWs as being very comfortable to start referring resident oral health concerns to a nurse.

6.1.2.6 Usefulness of new information to assist delivering resident oral health care

Post-test (8.67) survey results (n=78) rated the online education session as being very useful in assisting PSWs to deliver oral health care to residents in LTC.

6.1.3 Feedback Survey

Results from the 13-question feedback survey elicited PSW agreement regarding their satisfaction of the online oral health module (Table 7). Specifically, the online session:

- Provided content that enhance their knowledge of oral health care for LTC residents;
- Addressed their learning needs;
- Material was clear and easy to understand;
- Will enable them to share the knowledge gained with others;
- Case studies aided in a better understanding of how to deliver oral care to residents;
• Prepared them to screen residents for oral health concerns;
• Will enhance their oral care delivery methods;
• Offered a visual component of satisfactory quality;
• Offered an audio component of satisfactory quality;
• Was easy for them to complete;
• Would be recommended to others in their field of work; and
• Overall was satisfying.

Typically three-quarters of the PSWs indicated their level of agreement as: ‘agree’ followed by ‘strongly agree’. Figures 13 and 14 represent the responses of the highest and the lowest level of agreement, respectively. Personal support workers reported an overall satisfaction rate of 80.7% with the online session which elicited the highest level of agreement of all survey responses, Figure 13. The question regarding PSWs’ recommendation of the online program to others had the lowest agreement rate of 72.7%, Figure 14. The graphs represent the highest and the lowest of PSWs’ agreement and share similar distribution curves, albeit the spread of Figure 14 is slightly wider given the more varied responses compared to Figure 13. Missing data of 10.2% was a consistent trend throughout all questions.

Feedback data are skewed in a very favourable manner, possibly due to unanimous satisfaction with the session, Hawthorne effect (study participants respond favourably knowing they are being monitored) or concern over the impact such as employment could have over a perceived negative response. This consideration will be further explored in the discussion.

6.1.4 Power Calculation

Contrary to expectations, not all 246 PSWs provided consent to participate; 76 of the 88 PSWs who consented provided usable data. It was therefore necessary to conduct post hoc power calculations.
Post-hoc power calculation was carried out for the comparison of two population proportions for paired data using the following formula (105):

\[
Power = P \left( N(0,1) < -Z_{1-\alpha/2} + \frac{\sqrt{n}|p_{pre} - p_{post}|}{\sqrt{f}} \right)
\]

\[
Power = P \left( N(0,1) < -1.96 + \frac{\sqrt{76}|0.15|}{\sqrt{0.2}} \right)
\]

\[
Power = P(N(0,1) < 0.96)
\]

\[
Power = 83.15\%
\]

The components of the formula include:

- Sample size (n) = 76
- \(Z_{1-\alpha/2} = 1.96\) (for two-sided \(\alpha = 0.05\))
- discordant pairs = \(f\) = 20\% = 0.20
- difference between proportions of the pre- and post-surveys = \((p_{pre\text{-survey}} - p_{post\text{-survey}}) = 15\% = 0.15\)

The following criteria were met to obtain a very good power of 83.15\% in the detection of a relevant difference between the PSW’s pre-and post-multiple-choice survey responses, specifically regarding the frequency of daily resident brushing. A two-sided McNemar’s test was carried out using a sample size of 76 matched pairs. A difference between proportions of the pre- and post-survey was 15\%. An assumption was made that the proportion of the discordant subject pairs is 20\%; an alpha level z-score for a two tailed test of 1.96 with a significance level (\(\alpha\)) of 0.05.

### 6.2 Qualitative Study Results

Qualitative study results include data from the qualitative demographic survey, and PSW focus groups and one-on-one interviews.
6.2.1 Demographic Survey

A total of 23 PSWs participated in focus groups or one-on-one interviews. Each participant was asked to complete a qualitative demographic survey consisting of fourteen questions. Questions pertained to the PSWs’ age, sex, education, work experience, primary language, number of languages spoken, profession, work shift, employment status, functional capacity of typically assigned residents (minimal, moderate, and full assistance), frequency of resident oral health provision, and screening.

The majority of the demographic questions required a handwritten response by the PSW. Specific groupings were developed during data analysis because of the small sample size and the possibility of incidentally identifying participant(s) through the reporting of a revealing characteristic that applied to one or a few PSWs. Questions pertaining to age, and work experience were categorized into 10-year groupings; responses pertaining to education were categorized into five-year groupings.

Due to unforeseen circumstances, two PSWs who initially indicated they wanted to participate in the focus groups were unavailable. A total of 21 demographic surveys were completed and returned by the respective PSW to the RA. Results are consolidated in Table 8.

6.2.1.1 Age

The majority of PSWs are between 40-59 years of age (61.4%).

6.2.1.2 Sex

Sex has been repressed because of a low cell count and risk of PSW identification.

6.2.1.3 Education

The majority of PSWs have 11-18 years of education (80%). The non-response rate was 5% while 5% of the respondents entered an invalid response.

6.2.1.4 Work Experience

Work experience spanned over 28 years, with a mean of 16.4 years.

6.2.1.5 Primary Language
The majority of PSWs reported their primary language as English (61.9%); followed by Tagalog 28.6%.

6.2.1.6 Number of Languages Spoken

The vast number of PSWs speak two to four languages (66.7%). The non-response rate was less than 10%. The majority of PSWs are multilingual.

6.2.1.7 Professional Type

Personal support workers, registered nurses, registered practical nurses and other professional groups participated in the overall QI project. This study was exclusively for PSWs, thus 100% of the participants were PSWs.

6.2.1.8 Work Shift

The majority of resident care is provided during the day because three-quarters of PSWs work the day shift (71.4%).

6.2.1.9 Employment Status

Employment is divided between full-time (52.9%), and part-time (42.9%). More than half of PSWs provide consistent, full-time resident care.

6.2.1.10 Resident’s Functional Capacity

The resident’s functional capacity indicates the level of need for assistance provided by the PSW. The proportion of PSW’s typical residents needing full, moderate and minimal assistance is 71.4%, 38.1%, and 28.6%, respectively. The majority of PSWs are responsible for the provision of full care to residents which contributes to a heavy workload.

6.2.1.11 Frequency of Resident Oral Health

Predetermined response options provided for the question were reported to be confusing by the majority of PSWs. The varied responses included: “1x a day per week”, “10x per week” to “per month”. The responses were not valid.

6.2.1.12 Frequency of Resident Oral Screening
Predetermined response options provided for the question were reported to be unclear by the vast majority of PSWs. Responses included: “daily”, “per week” to “1 per month”. The responses were varied thus not considered valid.

### 6.2.2 Focus Groups and One-On-One Interviews

Three themes emerged from the focus groups and one-on-one interviews including:

- The impact of the online oral health module on the PSWs’ knowledge;
- The PSWs’ desired learning methods; and
- Timing of resident oral health care.

Participant quotes supporting each theme follow in the next section.

#### 6.2.2.1 The Impact of the Online Oral Health Module on the PSWs’ Knowledge

The impact of the online oral health module on the PSWs’ knowledge was divided into the following categories:

- Refresher training; the online module was considered by the PSWs as *refresher training*;
- Lack of recall; PSWs could not recall the content of the online module; and
- Lack of work time to complete training; due to work responsibilities and time constraints, PSWs completed the mandated online module from home.

#### 6.2.2.1.1 Refresher Training

Methods and procedures of resident oral care were reported by the PSWs to have remained the same after they completed the online module. The participants indicated that the length of the online module, content, and accessibility of the program was appropriate. The PSW cohort unanimously voiced that the online module was a good refresher in their provision of resident oral health care. Responses to questions pertaining to what new knowledge PSWs acquired from the module typically included that there was little to none in that the module “refreshed” their knowledge. They voiced that they appreciated having it online so that they could go back to review, however their review activity was not assessed.
6.2.2.1.1.1 Transcript Dialogue 1

INTERVIEWER: Do you feel that the education session enhanced your knowledge on how to provide oral care to residents?

PARTICIPANT A: Yes, of course

PARTICIPANT B: It helps, it helps.

INTERVIEWER: Please explain.

PARTICIPANT B: Because even though we do have, I mean, the training before—but since there is no follow-up training since we start working, it tends to, that we are deviating from the main, they call it the, the, the—

PARTICIPANT A: The subject, the module?

PARTICIPANT B: No, no, no, because it’s been so long, you—sometimes you forget the, the basic principles behind those training things.

PARTICIPANT A: That they show you, yeah.

PARTICIPANT B: So at least if there’s a modules—

PARTICIPANT A: Or follow-up.

PARTICIPANT B: – like that and it reminds you of, I mean, how you do it properly.

6.2.2.1.1.2 Transcript Dialogue 2

INTERVIEWER: Other than the technique to open the mouth, were there any other new things that you learned from the session?

PARTICIPANT C: Not really, but we are just using our common sense...

6.2.2.1.2 Lack of Recall

As a means to refresh the participants memory of the oral health module which was the focus of the discussion, a PowerPoint presentation including screenshots of various aspects of the online program was carried out prior to each session. Despite having reviewed the material immediately
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prior to the focus groups or interviews, PSWs indicated that they could not recall content of the online oral health module. The online oral health module was available between the 13\textsuperscript{th} of February and the 2\textsuperscript{nd} of April 2018 while the focus groups and one-on-one interviews took place between the 31\textsuperscript{st} of May to the 24\textsuperscript{th} of July 2018.

The trend of participant preferences (likes and dislikes) regarding the online module was reported to be the lack of module recall. Participant discussions related to the lack of knowledge recall of the online oral health training. This was thought to be due to the time lapse from having completed the online module to when the focus group/one-on-one interview sessions were carried out.

6.2.2.1.2.1 Transcript Dialogue 3

INTERVIEWER: What, if anything, did you not like?

PARTICIPANT D: Nothing that I can recall, now, ‘cause it’s been a while that I did it.’

PARTICIPANT E: Like we said we don’t remember that much about it. [Laughter]

6.2.2.1.2.2 Transcript Dialogue 4

INTERVIEWER: Okay, and did you think that the length of this session was long enough?

PARTICIPANT F: I don’t know... yes, yeah cause’, I mean we did it in February. I don’t remember I do it.

6.2.2.1.3 Lack of Work Time to Complete Training

Personal support workers indicated that they completed the online oral health module at home as their heavy workloads prevented them from completing it during their work shift. Personal support workers also advised that they are not granted designated work time or resident coverage in order to complete the employer mandated online module. The aspect of the numerous employer mandated online courses was discussed. Voiced during all focus groups and one-on-one interviews, was that PSWs have many required online courses to complete thus it was difficult to recall the oral health module. Additionally, PSWs indicated that they completed the online courses after work hours as they were not afforded the time or received coverage for their resident-load during their work hours.
6.2.2.1.3.1 Transcript Dialogue 5

INTERVIEWER: *Was there anything you did not like about it (online oral health module)?*

*PARTICIPANT G: What I didn’t like, that it’s time-consuming so we do it at home. There’s no way we do it at here... load of... responsibilities – you give care, you toileting, you feed them, you do computer, changes... that’s kind of hard.*

6.2.2.1.3.2 Transcript Dialogue 6

INTERVIEWER: *What was your overall experience with the online training for oral health?*

*PARTICIPANT H: Like the training; we have to have, set up training that, this is it. Because some people – we don’t have time for the employer’s learning management system – the employer’s learning management system, I’m, I have time taking this one at home. But people, my coworkers, to tell you, I’m be honest with you, they will just run and they will tell: ‘Oh, I’m done’ and then they will answer whatever. This is it, because, because of our work, the, the pressure of our work as a PSW, we don’t have time to read...In all this employer’s learning management system, I’m doing this one at home most... of the time and then.*

6.2.2.1.4 Summary

Factors impacting the PSWs’ knowledge of the employer mandated online oral health module included: the consideration the module was refresher training; the PSWs inability to recall the module content; and the lack of time to complete the training at work.

6.2.2.2 Desired Learning Methods

A second theme that was discussed pertained to the desired method of learning oral health care as expressed by the PSWs. Online learning was considered convenient and beneficial given the perception that the material could be reviewed at a later date. PSWs involved in focus groups or interviews who attempted to review the online oral health module prior to their session advised of their inability to access the module for unknown reasons.
In addition to the online module, there was a vast majority of participants who indicated that they wanted more oral health training. Participants voiced that they would like to augment their online oral health learning. Specific methods of augmentation voiced were in the form of interactions, in-services and/or one-on-one coaching during the provision of resident care with the SIDH. The PSWs who verbalized their desire for additional training tended to seek opportunities where they could apply the content reviewed on the online module to resident oral health care scenarios and challenges.

6.2.2.2.1 Transcript Dialogue 7

INTERVIEWER: So I’m curious, are there any other suggestions that you would make or from other modules that you’ve completed, to make it more memorable, so that it helps you?

Participant I: For me suggestion, maybe the oral, I mean the hygienist will come to our floor at least every 2 or 3 months to come and visit our residents. Maybe ask our nurse who is having oral health problems.

Participant J: As opposed to waiting for an appointment.

Participant I: Yeah, because sometimes our, some of our residents they can talk but they keep yelling, shouting and we don’t know that they have a problem in their mouth because if you feed them they can’t even open their mouth. And we cannot just, you know, because if they, maybe they thought that we’re forcing her or doing something to them.

Participant J: Yeah, yeah.

Participant I: So maybe it’s better—at least if the hygienist with hygienist with the nurse and with the PSW, maybe it’s better, for us, it helps for us.

6.2.2.2.2 Transcript Dialogue 8

INTERVIEWER: And what are your thoughts about having a hygienist available to you on the floor to help or show you?

PARTICIPANT K: I think is great cause I mean like I said we have time where we’re frustrated and not knowing how to do something for a certain person. And having
somebody that has a little more knowledge than we, we have and being able to ask them these questions and get some feedback from them is helpful. Also with our experience with the people we have cause I mean you have somebody who comes in and has never met this person before and wants to examine their mouth and we have tricks that we can do to open their mouth so we’re teaching her something as well as her being able to teach us something so.

6.2.2.2.3 Summary

Personal support workers would like to advance their oral health learning particularly to address the needs of complex residents. Ideally the training would be individualized, practical in nature and with a SME, such as a SIDH.

6.2.2.3 Timing of Resident Oral Health Care

A third and incidental theme emerged which pertains to when PSWs are carrying out resident oral hygiene. Discussions revealed that the PSWs who work the day shift provide resident oral health care in the morning before breakfast. The majority of PSWs who participated in the focus groups and interviews work the day shift. There was very little representation of PSWs who work the evening shift.

6.2.2.3.1 Transcript Dialogue 9

INTERVIEWER: For oral hygiene, when do your clients typically clean their mouths?

PARTICIPANT L: In the morning.

INTERVIEWER: Morning – is that before breakfast?

PARTICIPANT L: Before breakfast.

6.2.2.3.2 Transcript Dialogue 10

INTERVIEWER: When do your clients typically clean their mouths?

PARTICIPANT M: And sometimes when you come back in the morning they are still dirty here. I don’t know if they brush or what. Not even clean and then when you put the water in the w—in the mouth, it’s still dirty. So I think they’re not brushing the teeth. I
feel bad for the PSW too who works evening because they’re only two people and they have fourteen people each.

INTERVIEWER: Fourteen people?

PARTICIPANT M: Yeah, we have seven in the morning and they have fourteen for the evening.

6.2.2.3.3 Summary

Resident oral health care is taking place in the morning before breakfast. The provision of additional daily resident oral health care is unknown.

6.3 Mixed Methods Results

This convergent mixed methods design integrates the quantitative and qualitative data. Three themes emerged and are summarized in Table 9 include:

1. oral health module recall
   • divergent as the qualitative data informs that the oral health online content could not be recalled after having completed the module two to four months prior.

2. learning needs and methods
   • divergent as the qualitative feedback survey indicated that learning needs were met, PSWs voiced their desire for practical training.

3. timing of oral health care
   • unique as knowledge of frequency of brushing is known, however, behaviour of brushing is not.

6.4 Secondary Literature Searches
Secondary literature searches were carried out in order to advance emerged themes following the mixed methods analysis. Researched themes and subjects include learning, self-initiated dental hygienist, timing of oral care and recall which are considered in Chapter 7, Discussion.

An Instruction and Liaison Librarian at the Ontario Institute for Studies in Education at the University of Toronto provided search assistance for the theme of learning. The University of Toronto library website was accessed and the keywords used to research each theme or subject is listed in Table 3.

Additional searches pertaining to the other themes or subjects were carried out using research pertaining to the theme of self-initiated dental hygienist using the University of Toronto’s library website. Additionally websites of the College of Dental Hygienists of Ontario (102, 106), Ontario Dental Hygienists’ Association (107) and the Ontario Dental Association (108) were accessed to advance the search of the self-initiated dental hygienist. Applicable information obtained from the searches will be included in the discussion.
Chapter 7 Discussion

7 Introduction

This study was meant to show whether or not there was a change in PSWs’ knowledge and beliefs following online oral health training. The null hypothesis posed was that PSWs employed at the LTC facility will not experience any change in knowledge and beliefs regarding oral health and its provision to their clients following the mandated oral health online education module. Quantitative results indicate that four of the questions answered were statistically significant. Other questions were answered to a high degree which would limit a statistically significant change. Qualitative and mixed method results indicate that the null hypothesis in fact, is supported in that the PSWs did not experience change in knowledge and beliefs across all domains having participated in the oral health online module.

The results are complex and focused on the online oral health module, PSW (individual) factors and institutional factors. The corresponding themes included: impact of the online oral health module; request for additional methods of oral health learning; and the timing of current resident oral health care. The themes suggest that: PSWs could not recall the content of the online oral health module and considered it refresher training; PSWs desire additional dialogic and hands-on oral training; and timing of current resident oral health practices may not be following best practices.

Three themes emerged from the data include:

- Impact of the online oral health module;
- Methods of learning; and
- Timing of resident oral health care.

The discussion will be divided into three sections following the three themes identified above.
7.1 Impact of the Online Oral Health Module

Personal support workers acquired knowledge following the online training module as revealed by quantitative data analysis of pre- and post- oral health module survey responses. Two of the seven questions had statistically significant responses (Table 5). One of the two questions posed was “(h)ow many times a day should you clean a resident’s mouth?” The correct response is “2” which resulted in the PSWs’ increase in knowledge of 21.1% (p = 0.001), see Figure 9. The second question was “(i)t is necessary to wear proper Personal Protective Equipment including gloves and a mask when providing mouth care to a resident in order to protect yourself and your client?” The correct response is “True” which resulted in an increase of the PSWs’ knowledge of 19.7% (p < 0.001), see Figure 10.

Changes in beliefs were evident by the quantitative data analysis of two Likert-scale pre- and post- survey responses (Table 6A). One of the questions posed is “(h)ow comfortable are you in your ability to provide oral health care such as brushing your client's teeth? Scale 1-10 where 1 is not confident and 10 is extremely confident, using increments of one.” The post-educational mean for 76 PSWs is 8.82 with a mean difference increase of 0.289 which is statistically significant (p = 0.051), Figure 11. The second question is “(h)ow confident are you to correctly identify oral health concerns based on your client's oral health condition? Scale 1-10 where 1 is not at all confident and 10 is extremely confident.” The post-educational mean for 76 PSWs is 8.59 with a mean difference increase of 0.921 which is statistically significant (p < 0.001), Figure 12.

Personal support workers reported that the online oral health module was useful but were often unable to elaborate on specifics during focus groups and interviews. They attributed their failure to recall the content of the online module due to: the delayed time between completing the online module to when the focus group or interview took place; the volume of employer mandated online modules they are expected to do on a regular basis; and no designated time to complete the online oral health module at work. As a result of their memory recall, PSWs were challenged to remember the online material and fully answer the qualitative questions. Their perception of the online module was nevertheless favourable.

Further questioning during the focus groups and one-on-one interviews confirmed that PSWs valued the online module as it served as a refresher of what is to be provided for resident oral
health care. Many PSWs verbalized that they had little to no prior oral health training and that the online training reinforced their current knowledge and beliefs which were often of their own personal oral hygiene practices or experiences.

Despite being well-received, the online module may have failed to have a greater impact in the change of PSWs’ knowledge and beliefs because of the:

- two- to four-month delay between the completion of the online module and participation in the focus group or interview;
- volume of employer mandated online courses; and
- lack of designated time or resident coverage for PSWs to complete the online training during work hours.

7.1.1 Delayed Time Between the Online Module and the Focus Group/Interview

Personal support workers attributed their loss of recall of the online module in part to the two- to four-month delay from when they completed the online module to when they participated in the focus group or one-on-one interview. The online module training began the 13th of February 2018. Personal support workers who consented to be part of this study were required to complete the module by the 2nd of April 2018. Due to unforeseen circumstances, the PSW focus groups and interviews were delayed and took place between the 31st of May 2018 and the 24th of July 2018.

Prior to the scheduling of PSWs’ focus groups and interviews, a RA involved in the greater QI project advised of the lack of recall another care giver group was experiencing during their one-on-one interviews. In an effort to assist the interviewees in their recall of the online material, the RA prepared and showed a PowerPoint presentation to the other caregiver group immediately prior to their one-on-one interviews. The presentation consisted of screen shots of the various components of the online program as well as specific content of the training module. The PowerPoint presentation was also included at the beginning of all PSWs’ focus groups or interviews. This activity was intended to remind the PSWs of the specific module that was the topic of discussion.
Personal support workers partially attributed their loss of recall of the online module to the time delay between when they completed the online module to when they participated in focus groups or interviews.

7.1.2 Volume of Employer Mandated Online Courses

Personal support workers reported their requirement to frequently complete employer mandated online courses, one of which was the online oral health module. For instance, from the 1st of January 2018 until the 14th of August 2018 (226 days), PSWs were responsible for completing 67 online learning courses \( (LTC \ staff, \ communication, \ August \ 14, \ 2018) \). On average, one employer-mandated course was to be completed every three days. The current tempo of online courses that are typically completed after work hours is considered high and contributes to the PSWs’ responsibilities and raises concern for burnout. Additional course requirements for the remainder of 2018 are unknown at the time of writing.

Time required for a PSW to complete each of the 67 courses thus far this year has varied between 1-30 minutes for a total of nine hours and 51 minutes \( (LTC \ staff, \ communication, \ August \ 14, \ 2018) \). Timing is based on the run time of the module and not how long it actually takes the learner to complete \( (LTC \ staff, \ communication, \ August \ 14, \ 2018) \).

7.1.3 No Designated Time or Resident Coverage for Online Training

Personal support workers considered the volume of online learning modules that they are expected to complete on their own time as being onerous. These demands overwhelmed the PSWs and may have resulted in their inability to recall material to any great extent. Because PSWs were not provided designated time to complete employer mandated online training they felt that their online learning demands interfered with their responsibilities such as family and supplementary employment which may have prevented their full focus on the oral health training module.

PSWs described past experiences when they attempted to complete online courses during the work day and they would encounter distractions and frequent interruptions because of their heavy work responsibilities. The majority of PSWs indicated that they would typically complete the required course on their own time and away from their work environment. No financial
compensation was provided for completing the courses nor was time provided during work shifts to complete these modules.

7.2 Methods of Learning

Personal support workers indicated that the online module was a convenient way of reviewing oral health material on their own time. Several PSWs indicated that the online module was beneficial in that they could go back to review material, albeit for an undisclosed period. It was not accessible when they tried to access it prior to the focus group. The activity of PSWs reviewing material after having completed the initial mandated module was not monitored, however, and could be included in a future research opportunity.

According to the literature, PSWs report that their formative education usually took place in conventional classrooms where the instructor teach the students. The PSWs in this study reported similar findings. Technological advances coupled with supply and demand for different learning options have resulted in the current popularity of online courses. As a result, online courses have become a common means of delivering learning material.

Online learning facilitates global synchronous and asynchronous learning opportunities wherever internet is available. The convenience of learning away from the traditional classroom at specific times allows students to learn at their own pace and at their preferred time and location. Online learning allows the learner to multitask in that they can pursue educational aspirations while fulfilling responsibilities such as employment and raising a family. Other benefits include cost and time savings such as those involved with transportation and childcare which would not necessarily be required with online learning.

Despite the benefits of online asynchronous learning, there are considerations and limitations that warrant further exploration including:

- not all learners understand how to navigate or are comfortable using, a technology-driven online environment;
- some topics are less suited for online learning;
• the learner can experience social and physical isolation from classmates and the instructor;

• appropriate technology including a device or computer and internet access is required; and

• lack of support for the learner who wants clarification, experiences difficulties, or has questions about the content.

Focus group and interview participants indicated that having the oral health care module available online was beneficial and convenient for similar reasons identified above. They voiced appreciation for the module as convenient because it allowed them the opportunity to learn and review material at their own pace and often in a location other than their workplace. Most PSWs reported having a busy life-style that involved multitasking, so the online asynchronous training capability gave them the flexibility to do the oral health training when they wanted. Examples include when commuting on public transit or after work at home where they could focus on the course in a quiet and uninterrupted environment.

7.2.1 Monologic Learning

Despite the advantages of online asynchronous learning, PSWs reported that they wanted more, yet different, training that could help them better understand the material and put their learning into practice for the residents’ benefit. Practical learning opportunities requested by the PSW pertained to complex residents who have cognitive, behavioural and/or physical limitations. Specific areas of concern include residents who have difficulty swallowing (concern is with use of toothpaste and mouthwash), need for suctioning (a treatment modality that the PSW is not authorized to do), gastric-tubes, intraoral fixtures (i.e., oral hygiene for bridges), violent and/or aggressive behaviours. Similar findings were reported in the literature and represented barriers to learning (6, 83, 89).

The online asynchronous oral health module is monologic in that it is limited to one-way communication originating from the perspective of the presenter/instructor (authority) (111, 112). The learner passively receives the predetermined material and may be unable to discuss or seek clarification, as was the case for the oral health online module (109-113). The learning environment tends to be isolating for the learner (i.e., PSW) and individualistic (111, 112).
7.2.2 Dialogic Mediation

Dialogic mediation refers to a cooperative learning process between the learner and teacher (coach) (111, 112). The learner becomes an active participant in the learning process while the instructor fosters an egalitarian authority whereby learning is shared between the two roles (111, 112). The relationship between the learner and instructor is collaborative (111, 112).

Personal support workers in this study verbalized their desire to have additional oral health training that was dialogic in nature. In particular, they would like practical hands-on opportunities that permit dialogue with a SME. Above and beyond the online module, the vast majority of PSWs verbalized their desire to be given the opportunity to collaboratively discuss and work through resident oral health concerns with a professional. Such a learning environment is considered conducive to discussion and the practice of relevant hands-on skills as presented in the online training module. As demonstrated, previous studies suggest that the inclusion of practical/hands-on learning opportunities for PSWs positively impact the PSWs’ ability to provide resident oral health care (6, 83). Conversely previous studies that did not include practical/hands on learning opportunities for the PSW report less favourable results (6, 83). It is unknown if the current monologic online program can be made into one that is dialogic and capable of meeting the needs of the learners.

7.2.3 Monologic Teaching Compared with Dialogic Mediation

Monologic teaching differs from dialogic mediation in terms of knowledge; learners; teachers; and relationships and context (111, 112). A comparison of monologic teaching and dialogic mediation is presented in Table 10 (111, 112). Monologic teaching is directed from the teacher and passively received by the learner (111, 112). Dialogic mediation is an active two-way dialogue between the teacher and learner and the relationship between the two is mutual and more balanced when compared with the hierarchical relationship in monologic teaching (111, 112).
7.2.4 Referrals of Resident Oral Health Concerns

The overarching QI Project trialed a new process of referring residents with oral health concerns such as those voiced by the PSW. The new approach permits the nurse to directly refer residents to the SIDH who can readily assess and treat and/or refer the resident to a dentist as required. This approach differs from the traditional referral system which involves notifying the doctor, then dentist prior to the hygienist. The intent of engaging the SIDH from the beginning was to achieve a more direct and timely dental assessment of the resident. During focus group and interview sessions, this new approach was indirectly requested by the PSWs in the context of a learning opportunity. PSWs verbalized their desire to augment the online module with in-service or hands-on training. Suggested ideal training involved being coached by a SME, such as a SIDH.

7.2.5 Self-Initiated Dental Hygienist (SIDH)

The SIDH is a relatively new type of registered dental hygienist who has additional credentials that enable them to work without being supervised by a dentist. The Health System Improvements Act, 2007 which replaced the Dental Hygiene Act, 1991, permits a SIDH who is registered by the College of Dental Hygienists of Ontario to self-initiate the controlled act of “scaling teeth and root planing, including curetting surrounding tissue” (106).

Staff and residents can benefit by having access to a SIDH at the LTC facility. Personal support workers can be mentored by the SIDH. Furthermore, residents can be readily assessed and treated by the SIDH in the comfort of their residence with the use of mobile dental equipment. This is particularly beneficial for the frail and medically compromised residents who are challenged by travel required to access dental care (7). Additionally, staff responsibilities can be reduced when on-site oral hygiene services are available in that the need to coordinate resident care and transport is eliminated (7).

The SIDH involved in the QI study has the capacity to assess and treat residents within their scope of practice and without the direct supervision of a dentist. Personal support workers who had exposure to, and who were assisted by the SIDH reported this method of learning as ideal, and a good means of reinforcing didactic material using a practical approach following the online training. Those who did not have the experience of a SIDH suggested one-on-one training and/or
workshops conducted by the SIDH followed by a confirmatory hands-on session. Similar findings where the PSW realized the benefit of an SME (i.e., RDH) have been reported in the literature (6, 83).

7.2.6 Oral Health Training of Personal Support Workers

Personal support workers expressed their desire to improve their oral health care knowledge through practical training with a SME. Unfortunately, the majority of PSWs were unaware of the trialed QI referral approach and the capabilities of the SIDH when questioned in the focus groups and interviews. Once the trialed referral approach and the SIDH capabilities were explained, PSWs unanimously indicated that the SIDH was an ideal SME who could help them advance their resident oral health care knowledge and practices (114).

Another dialogic method of learning included in-services which PSWs indicated they benefitted from in the past. They appreciated the opportunity to learn with their peers in a group setting and have the opportunity to discuss and work out real-life challenges together. This method of learning was done in the past at the LTC facility and the PSWs indicated that they felt it was a viable and supportive learning opportunity provided they were made aware of the training and there were provisions in place for them to attend the session, including resident coverage.

7.2.7 Situated Learning Theory

Advancing dialogic mediation, situated learning theory is based on the concept that learning is ‘situated’ as it takes place by collaborative participation in an activity, a context or culture (115). It involves the learner taking an active and engaged role in the learning process rather than passively listening to a presentation or instruction (115). Learning is to occur by physically and collaboratively working through activities while applying previously acquired knowledge (115).

Oral health care is a hands-on activity that requires active learning by practicing the various techniques and procedures. Personal support workers indicated that although they appreciated the online module, they longed for realistic and practical learning with someone who could answer their questions and help guide them through resident specific situations. Situated learning speaks to the process that PSWs described as being the next logical step in achieving their resident oral health learning needs.
7.2.8 Legitimate Peripheral Participation

Legitimate peripheral participation is a means to understand learning. It involves the learner joining a community of practice, which is a group of people with a common goal who become increasingly active participants as they gain knowledge and skill (115, 116). Lave and Wenger coined the term community of practice as “a set of relations among persons, activities, and world, over time, and in relation with other tangential and overlapping communities of practice” (p.98) (115).

Lave and Wenger describe relationships within the community of practice by way of legitimate peripheral participation which they state, “provides a way to speak about the relations between newcomers and old-timers, and about activities, identities, artifacts and communities of knowledge and practice. It concerns the process by which newcomers become part of a community of practice” (p.29) (115). The learner is engaged in the learning process with the intent to becoming a full participant in the community of practice (115). In addition to the participant’s acquisition of knowledge and skill, legitimate peripheral participation involves the continued generation and transformation of communities (115).

The community of practice for the PSWs include other caregivers, residents, resident family members, management, support staff, volunteers, etc. The process involving a recently graduated PSW providing oral health care to residents can be viewed as a primary caregiver who is located on the periphery of the community of practice given they have limited resident oral health care knowledge and abilities (115). Conversely, the SIDH can be seen as the SME who is located in the middle of the community of practice and who can collaboratively foster a dialogic environment with the PSW within their shared authentic work environment.

As the PSW becomes a more active participant in their community of practice, they move towards the center of the community of practice as their skill set advances and they become more capable and confident in their abilities, and less reliant on the SIDH. As a result of the inward move, the PSW has transformed not only as a member but also as a mediator within their peer group and community of practice. (115)

During a focus group session, one PSW self-identified as a leader in oral health provision for a geriatric population. The PSW revealed their experience in performing oral hygiene and their
thoughts on the importance of having a PSW within the community considered a “peer support” to other PSWs with a view to improve oral hygiene amongst the residents. It was the PSW’s belief that having a colleague coach them would be more comfortable and less intimidating than an external trainer.

7.3 Timing of Resident Oral Health Care

During the focus groups and qualitative interviews, PSWs consistently reported that residents had their teeth brushed or dentures cleaned before eating breakfast which was perhaps the only time oral hygiene was carried out during a 24-hour period. The majority of participants worked the day shift thus there was little discussion regarding evening shift routines. The provision of before bedtime oral health care is imperative because the majority of residents suffer from dry mouth (xerostomia) and a lack of salivary flow rate at night (both concepts will be further discussed).

The quantitative surveys did not pose any direct questions regarding timing of oral health care; however, one question pertained to the best method of plaque removal while the other queried the frequency of brushing. Both questions were well answered though actual practices were not verified.

Additionally, PSWs were asked how they know what oral health care they are to provide for their residents. When probed further, they were asked about previous training and guidelines on the subject. Generally, PSWs indicated that they typically do mouth care that they would do for themselves and that many received basic instruction during their PSW training. No PSWs commented on oral health guidelines.

A review of PSW scheduling will be considered in an effort to better understand the demands made on them and the realities of employment in relation to the provision of oral health care. The day shift which begins at 07:00 and finishes at 15:00 has a PSW to resident ratio of 1:7. The evening shift begins at 15:00 and finishes at 23:00 and has a PSW to resident ratio of between 1:12 (residents who have greater functional demands) to 1:14 (residents who have lower functional demands) (LTC staff, communication, August 24, 2018). It is unknown if and how the reduced PSW coverage during the evening shift impacts residents’ evening oral health care given that there are approximately half of the caregivers available for the geriatric population when
compared to the day shift. Additionally almost three-quarters of residents require full assistance for activities of daily living which represents a heavy workload for the PSW. Further investigation is warranted to determine frequency, timing and consistency of resident oral health care.

7.3.1 Xerostomia

Dry mouth, known as xerostomia, can have a detrimental impact on the elderly because it can alter basic functions such as swallowing, dietary intake, speaking, taste, and protection against disease (12, 117-120). An adequate salivary flow is an important aspect of a healthy mouth as the flow is instrumental in removing plaque and debris from the teeth, gums and oral cavity. A diminished salivary flow impedes the removal of dental plaque from teeth and lessens the buffering capacity which can predispose the individual to a greater risk of caries (cavities), tooth erosion, mucosal breakdown which can subsequently lead to infection and loss of function (117, 119).

Daily resident oral health care is important because xerostomia is a real concern for this population. Timing of oral care could have significant implications not only on oral health but also on general wellbeing (2, 6, 26, 27, 34).

Approximately one-third of seniors aged 65 years or older develop xerostomia (119, 121). Xerostomia is not solely the response to aging (120). Causes of xerostomia can include diseased or damaged salivary glands (i.e., radiation of the head and neck and chemotherapy), systemic diseases (i.e., Sjögren’s syndrome) and typically the result of polypharmacy (12, 117-121). Polypharmacy involves the consumption of prescribed medications that are relied upon by the elderly population including diuretics, anti-hypertensives, anticholinergics, anxiolytics and antipsychotics (117-120).

Most of the residents are dependent on caregivers. They will not be uniformly able to independently manage dry mouth or express such a need due to physical or cognitive deficits. Other contributing factors that could lead to the resident’s reduced water intake could include a diminished sense of thirst, concern for becoming incontinent and having to obtain assistance to drink (117).
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It is crucial that PSWs are aware of and educated about xerostomia so that they can appropriately assist with and provide resident oral health care in order to alleviate or minimize deleterious effects (120). It is equally important that the caregiver’s supervisor understands the importance and impact of xerostomia and supports the caregiver in their provision of resident oral health care in terms of education, guidelines, staffing and other required resources so that consistent and adequate oral health care is provided, particularly before the resident sleeps.

7.3.2 Saliva Flow Rate

Saliva type and flow rate can vary from person to person and from time of day and year (122, 123). Saliva is characterized as being stimulated or unstimulated. Stimulated saliva is typically produced when someone is eating or chewing something in their mouth whereas unstimulated saliva is that in the mouth when at rest (124). During waking hours, the average unstimulated saliva flow rate is 0.3 mL/minute, which produces 300mL in a 16-hour period (122, 125, 126). Stimulated salivary flow rate can be as high as 7 mL/minute which produces up to 80% to 90% of the typical daily volume of saliva (122, 125). During sleep, the flow rate approximates to zero (118, 119, 122). A lack of salivary flow during sleep coupled with the presence of intraoral bacterial plaque (i.e., plaque not removed prior to bed) unnecessarily predisposes the resident to deleterious effects (120). Stakeholders such as caregivers and management who understand the rational for resident oral health care before bed for reasons such as the cessation of salivary flow can take action to foster a conducive environment for resident oral health care before bed (i.e. prioritizing care, scheduling, adequate staffing).

7.3.3 Best Practices

The timing of oral health care practices is crucial for the senior population. As a minimum it should be done prior to the resident’s rest period in order to remove bacterial plaque that can cause dental cavities, gum diseases and other preventable conditions. It is imperative that teeth are deplaqued with the use of fluorides (127), and that the oral cavity is thoroughly cleansed prior to bedtime since plaque and debris will remain in-situ and not be cleansed away as a result of minimal to no salivary flow during rest periods (lowest circadian level), which can predispose the resident to negative sequelae (119, 122). A reduced salivary rate can also impact denture wearers, thus dentures are to be thoroughly brushed, properly maintained and remain out of the mouth during the night (119). According to the Canadian Dental Association: “Ideally, you
should brush after every meal, because the bacterial attack on teeth begins minutes after eating. At the very least, brush once a day and always before you go to bed” (132).

The impact of proper daily oral hygiene practices translate into favourable outcomes for the resident and LTC staff. Firstly, improved oral health reduces the incident of disease and enhances the resident’s ability to eat, swallow, speak and socialize. As a result, their quality of life is maintained, if not improved. Additionally, the required dental treatments will be reduced and so too will be the resident’s anxiety level and wear and tear that is associated with transportation to and from dental services. Moreover, financial costs associated with dental treatment will be minimal resulting in a savings to the resident who is typically responsible for applicable fees. Finally, the LTC staff will benefit in that they will not be responsible to expend time and effort to logistically plan for resident dental care and transportation.

7.4 Strengths

Strengths of this study include:

- mixed method study;
- identification and advancement of the needs of the learner; and
- identification and advancement of structural barriers that limit best practices.

7.4.1 Mixed methods approach

A mixed methods approach was employed with a view to obtain deeper insights into the possible benefits of education in oral care. This study aligns with the literature that reports knowledge alone is not conducive to changes in the provision of oral health care (6, 89). Mixed methods findings varied and were either convergent, divergent or unique; such findings would not be possible with either a quantitative or a qualitative approach alone. For example, the needs of the learner appeared to have been met based on the analysis of quantitative data. Listening to PSWs express their learning needs and concerns during the focus groups and interviews revealed a very different yet authentic perspective.

7.4.2 Identification of the needs of the learner
This study identified the needs of the learner and uniquely explained them using appropriate terminology and explanations to better understand the learning process. Online learning, an increasingly popular method of learning is monologic and therefore limiting when learning a practical skill such as resident oral care. Personal support workers described their desired learning as being authentic and situated within their work place while engaging in dialogic mediation with a SME (i.e., SIDH, RDH). Furthermore it was realized that PSWs want to take on greater responsibility in their provision of resident oral health care. Initially the SME is considered the primary role model in legitimate peripheral participation however several PSWs are inspired to take the leadership role once they develop their skills and confidence.

Advancements to PSWs’ learning methodology have been implemented as a direct result of findings of this study. Practices at another LTC facility has small groups of PSWs completing the online oral health module at individual computer work stations while being led through the various components by a SIDH who encourages dialogic mediation. This new process is well received by the PSWs, however its effectiveness has not yet been determined.

Additionally, members of the LTC facility’s education department who developed the online learning module attended a presentation regarding this study. Subsequently the presentation was requested and used in a presentation to the education department for the employees’ situational awareness.

7.4.3 Identification of structural barriers that limit best practices

The timing of resident oral health care presented as a unique and incidental finding in that PSWs are aware that care is to take place twice a day however evening care may not be consistently taking place. Personal support workers have the knowledge but structural limitations prevent them from carrying out important resident oral health care before bed.

After having attended a presentation and made aware of the recommendations of this study, the LTC senior clinic manager advised that there will be an additional PSW work shift. The new shift will employ several PSWs each day from 12:00 to 20:00 in order to address resident oral care needs. Additionally the clinic manager requested portions of this study be communicated to the PSWs in order for them to understand the importance of oral care as well as the impact they have on the residents and on this study.
7.5 Limitations

Limitations of this study include:

- Non-representation of all SMEs/management;
- Survey questions not pilot tested;
- Low item response and feedback survey rates;
- Constraints pertaining to this study being conducted within a quality improvement project;
- Deficiencies in the learning management system;
- The primary data collector and analyst was the same person; and
- Single LTC facility design thereby limiting generalizability of findings.

7.5.1 Non-representation of Subject Matter Experts/Management

Planning meetings for the various phases of the program including design, development and execution did not include all SMEs such as clinical management, PSWs, nurses, doctors or residents. This limitation contributed to the lack of awareness and support for the program at the management and clinical levels. The lack of collaborating with all SMEs could have been limiting in that important considerations may have been overlooked. For example, five qualitative face-to-face focus groups, each scheduled for 90 minutes, were to be carried out during designated PSW work-time while appropriate resident coverage was to be provided. This activity was not supported during the qualitative study phase. Personal support worker recruitment for focus group activities was challenging and resulted in delays that were reported to have impacted the PSWs’ recall of the module.

Personal support workers who volunteered to participate did so after their work shift or during designated breaks. The logistics involved in scheduling focus group sessions were exceedingly time consuming and challenging. This situation resulted in a REB amendment for the inclusion of one-on-one interviews. Sessions were much shorter than the initially planned 90 minutes, as
they averaged 33:02 minutes and were often rushed or questions not elaborated on in order to accommodate the PSWs’ schedule. The lack of knowledge and support of the project resulted in added pressures and demand on the PSWs and project staff and impacted the overall data. These cumulative conditions may have resulted in ‘thin’ data (insufficient data to fully explore issues and what they mean for study participants).

7.5.2 Survey questions were not pilot tested

The online module questionnaire and surveys as well as the focus group demographic questionnaire and interview questions were not pilot tested. Management limited survey questions in an effort to reduce the time required for caregivers to complete the module. As a result, a comprehensive assessment of the desired aspects of the PSWs was not possible including greater emphasis on their beliefs and knowledge regarding the provision of resident oral health care. Additionally not all pre-survey questions had responding post-survey questions and vice versa. This limited the ability to compare those questions.

Some of the pre- and post-survey questions posed may have been considered confusing and negatively impacted the results (Appendices C and D). For example one question asked “How comfortable are you in your ability to provide oral health care such as brushing your client's teeth? Scale 1-10 where 1 is not confident and 10 is extremely confident, using increments of one.” The question asked how comfortable the caregiver was however the expected response was to rate their confidence level. Another question that may have been unclear was “What is the best method for removing oral bacterial plaque? given the following responses: a. toothpaste; b. using a medium bristle toothbrush; c. the mechanical action of the toothbrush bristles; d. all of the above; or e. none of the above.” The question requested the best method (singular) which was, answer c. the mechanical action of the toothbrush bristles however answer d. all of the above (plural) was the expected response.

A few focus group/interview questionnaire questions posed confusion for the participants (Appendix J), specifically:

How often do you provide oral care to your clients?, with the corresponding answers:

☐ ________ per week  ☐ ________ per month  ☐ N/A
How often do you screen your clients for oral health issues?, with corresponding answers:

☐ ______ per week ☐ _______ per month ☐ N/A

As a result of these two questions, PSWs who participated in a focus group or interview asked for clarification and required rephrasing due to uncertainty of what was being asked.

7.5.3 Low item response and feedback survey rates

Quantitative survey non-response rates across all categories ranged from 5.7% to 56.0%. The highest non-response rate (56.0%) to the quantitative demographic survey question pertained to the PSW’s primary language. It is unknown why this question was not well responded to. Reasons could be attributed to the PSW: not wanting to be identified by virtue of their listed language; did not see the importance of the question; considered it to be a personal question which was uncomfortable to answer; or did not want to take the time to type the name of the language as it was not a multiple-choice option.

The second highest non-response rate (20.5%) was to the quantitative questionnaire question pertaining to years of education. Reasons for the low response rate could be due to embarrassment should the PSW perceive their level of education is under scrutiny, concern that they could be identified, misunderstanding the question, or possibly they don’t know.

The feedback survey was unanimously favourable in that PSWs indicated they were satisfied or very satisfied with aspects of the online learning module. Conversely PSWs involved with the qualitative focus groups and interviews often indicated that they did not recall the online module. The positive feedback survey results could be due in part to the Hawthorne effect. The Hawthorne effect may be based on the concept that PSWs wanted to provide a positive reaction to the study as they may have felt that they were being observed and that their responses could somehow impact them or their employment. Additionally there was a consistent 10.5% non-response rate that was isolated to the same individuals.

7.5.4 Constraints pertaining to this study being conducted within a QI project

This study was conducted within an ongoing QI project. By virtue of a QI initiative, there was no external oversight thus all structures and processes of the program were internal to the LTC.
The LTC facility’s QI agenda was relatively set when this study commenced thus recommendations regarding the oral health module content, survey questions and corresponding responses, selection of a compatible learning management system, transcription services, and pilot testing of questions were not readily considered. Structure, processes and expected outcomes for the QI project were drawn from previous experiential items and not necessarily evidence-based (133). Bias, previous errors and ineffective local practices could be some of the considerations overlooked and perpetuated in the QI project. Addressing ethical considerations, PSWs (n=246) were mandated to participate in the QI project, thus informed consent was not required nor attained; nevertheless this study’s quantitative component (n=88) and qualitative component (n=23) required and obtained respective informed consent. The PSWs involved in the QI project may have been subjected to positive response bias knowing that their online activity and responses to survey questions were being monitored by their employer. They may have avoided authentic and possibly negative responses for fear of the impact this may have on their employment.

In an attempt to limit positive response bias, open-ended questions were posed during the focus groups and interviews. This allowed the interviewer to request clarification and additional information about the quantitative results. For the most part, a recurring theme occurred in that at the beginning of focus groups and interviews, PSWs spoke about the positive impact the online module had on them and indicated that they learned a lot and they thought it was helpful. Further questioning as to what was helpful and impactful revealed that many PSWs could not recall the online module. As the interview progressed, PSWs provided more varied and authentic responses. For example, PSWs spoke about their learning needs and desired training that were different from what was discussed at the beginning of the sessions.

7.5.5 Deficiencies in the Learning Management System

The LTC Facility’s Information Technology Department’s learning management system used for the QI Project, can be limiting. For example, within the module, caregivers were presented with two different button options including: “I confirm I completed the program” and “submit”. Caregivers could activate the button “I confirm I completed the program” and not “submit” whereby all their survey responses would be lost. This could impact the completion rate and valid responses available for the study.
Secondly, the learning management system is not readily adaptable to surveys in that it is incapable of linking pre- and post- survey results to the same person. For this reason, the linking process proved to be timely and susceptible to errors as it was done manually by a RA.

7.5.6 The primary data collector and analyst was the same person

The PI served as both the primary data collector and analyst which impact the scope of insights. Based on the tenets of qualitative reflexivity, the data collected and unique insights developed were influenced by the PI’s social position and professional training. Other researchers with differing social positions and training may have generated different insights.

My interpretation of this study’s results may be biased and influenced as a result of my background. My prior role as a student nurse in the LTC facility was similar to that of a PSW in that I provided direct resident care and experienced heavy workloads. Later as a registered nurse, I had greater leadership responsibilities (i.e., overseeing staff, dispensing prescriptions to residents). Although my experience as a dentist does not involve a geriatric population, as a senior supervisor, I am responsible for subordinates in various dental clinics.

My leadership/supervisory roles may bias how I interacted with or how I was perceived by the PSWs. In response to this awareness, during focus groups/interviews and interactions with PSWs, I intentionally self-identified as a student and did not reveal any additional information. While interacting with PSWs, I did not disclose my background with a view to increase the likelihood PSWs would not consider me senior to them which could result in a power imbalance.

7.5.7 Single LTC facility design thereby limiting generalizability of findings

The vast majority of PSWs who participated in the focus groups or interviews work the day shift. There was little representation of PSWs who worked evenings and no representation of PSWs who worked on an on-call basis thus the data may not be fully representative and is not generalizable to other PSW populations.

The LTC facility specifically required that their identity remain anonymous. This facility is unique in several aspects when compared to other LTC facilities. For example, this state-of-the-art facility offers many services and support agencies co-located within the LTC that are available to residents (specifics not listed due to the potential of identifying the facility).
Additionally, the PSW to resident ratio during the day shift is 1:7 which is 30% less compared to the average ratio of 1:10 in other LTC facilities in Ontario, Canada (134). The Ontario Council of Hospital Union reports that “91% of workers feel that (they) can’t provide quality care because they have too many patients…some personal support workers said, at times, they are left to care for up to 42 residents” (135). In conclusion, the low PSW:resident ratio during the day shift as well as many of the services and support agencies available within the facility make the LTC facility which this study is based on different from many of the other LTC facilities.

7.6 Conclusion

In summary, there are a myriad of factors that impact the PSWs’ knowledge and beliefs regarding resident oral health care. Additionally there are organizational factors that are beyond the PSWs’ control such as timing of oral health care that can significantly impact the resident. As stated by Thorne, Kazanjian and MacEntee, “effectiveness in oral health programmes for LTC populations appears contingent upon various interacting factors associated with the specific dental and oral health programmatic strategies that are in place as well as the organizational context that either supports or inhibits them,” pg. 274 (136, 137).

Despite the limitations identified in this study, the validity of the results are supported by several pieces of evidence. Although the QI was internal this study included myself as an external PI. The mixed methods study combined data from both the quantitative component (measure PSWs’ knowledge and beliefs) and qualitative component (understand PSWs’ perceptions of knowledge and beliefs) as they relate to the online oral health module. For the most part, the quantitative component followed standards pertaining to informed consent, deidentifying the PSW from their results prior to giving PI access, eliminating multiple/practiced responses and providing results based on statistics. Reliability of the qualitative component was established by the interpretation of PSW data by three sources (one internal and two external sources). Thematic analysis was discussed on an ongoing basis with committee members and RAs at the LTC who specialize in qualitative methods. When converged, the mixed methods resulted in a plausible understanding of the impact the online oral health module had on the PSWs. This suggests face validity (138).
Chapter 8 Conclusion and Recommendations

8.1 Conclusion

Overall PSWs were satisfied with the online oral health module. Comparison of the pre- and post-surveys immediately after the online training demonstrated the PSWs’ ability to learn since they improved their knowledge and confidence in resident oral health care. However, after a delay of several months between the online module and focus groups/interviews, the majority of PSWs lacked the ability to recall the online material. The loss of recall is attributed to: the heavy demands placed on the PSWs; and the lack of opportunity for them to reinforce the online material in a practical learning environment. Furthermore, PSWs expressed their desire for additional oral health training that is practical, dialogic with a SIDH, particularly when caring for complex residents.

An incidental yet inconclusive finding involves the best practice of the timing of resident oral health care, specifically the provision of resident oral health care before bedtime. Further research is necessary.

Significant findings pertaining to the PSWs’ knowledge and beliefs following the online oral health module were not consistent across all domains for the qualitative and mix methods results. Quantitative results included significant improvements in four of the PSWs’ comparative responses to the Pre- and Post-Oral Health Training Session Surveys. Nevertheless, three themes emerged and were related to how we might re-envision PSW oral health training for future iterations with a view to change their knowledge, beliefs, and behaviour for the benefit of residents.

The objectives of this study were achieved, including:

1. Mixed Methods

The impact of the online oral health education module on the PSWs’ provision of oral health care for residents in a LTC facility was measured and understood.

2. Quantitative
The changes in PSW knowledge and beliefs in their provision of resident oral health care after completing the online oral health education module was described.

3. Qualitative

PSW’s perceptions of their knowledge and beliefs in their provision of resident oral health after completing the online oral health education module was understood.

8.2 Recommendations

Future studies on this topic will require careful contemplation of the themes found here and consider modifications to expand and maintain PSWs’ learning over time. I recommend the following:

1. To improve recall of PSWs
   a. by limiting the number of employer mandated online modules
   b. by providing PSWs with adequate and uninterrupted work time without the responsibility for resident coverage in order to complete necessary employer mandated online learning modules
   c. by reducing the time between online module training and focus group and/or interview participation so that a more accurate assessment of the online module can be made. The more current information could provide insight into how to make the module more effective
   d. including additional methods of instruction to reinforce material (see point two below)

2. To include a dialogic method of instruction
   a. by involving a SME who is available to coach PSWs in resident oral health care (i.e., SIDH)
   b. by including an online module that is capable of dialogic interaction (e.g., synchronous opportunities that allow the learner to interact with a SME and/or
other learners, discussion board, capacity to pose and receive responses to questions)

3. Engaging SMEs/management
   a. thru inclusion of members on interdisciplinary teams (e.g., PSWs, RNs, advocates, family members, residents, managers, clinicians, and other staff such as information technologists)
   b. by ensuring their representation and input during all phases of the future study

4. Advance oral health guidelines
   a. by employing best practices based on current research
   b. thru timely communication of institutional changes in guidelines such as the referral process to all staff

5. Pursuing future research
   a. piloting survey questions with applicable personnel
   b. utilizing a fully capable learning management system
   c. carry out multisite research
   d. trial novel approaches to resident oral health care that are not education-based including:
      a. financial compensation of PSWs for their provision of resident oral health care; and
      b. employment of an external oral health provider within the LTC facility responsible for the provision of resident oral health care.

8.3 Closing Remarks
To improve understanding and create workable plans for PSW training, future iterations of this study should include collaboration amongst all SMEs during all phases of the project. Understanding, training, support, and guidance of PSWs are important considerations regarding advancement of their knowledge and beliefs in the provision of resident oral health care. Addressing these considerations will contribute to the advancement of the oral health of LTC residents. The residents have contributed to our society and have given so much of themselves in so doing. It is important that we take a vested interest in ensuring that the PSWs are adequately prepared to provide oral care so that the residents can live their final years to the fullest.
ORAL HEALTH EDUCATION OF PERSONAL SUPPORT WORKERS

References


26. Lai JY, Tenenbaum HC, Goldberg MB. Management of periodontal and gingival diseases and other oral disorders in frail elders with cardiovascular disease or diabetes. In: MacEntee MI,


42. "Long-Term Care Facility". Description: Personal Support Worker ('PSW')/Certified Health Care Aide ('HCA'). DRAFT. Ontario. 2013.


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123. Gomar-Vercher S, Simón-Soro A, Montiel-Company JM, Almerich-Silla JM, Mira A. Stimulated and unstimulated saliva samples have significantly different bacterial profiles. PLOS ONE. 2018;13(6):12.


**Table 1.** Characteristics of Care Aide Specific Studies as Reported in Hoben et al. Research of a Systematic Review and Meta-Analysis

<table>
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<th>Theme</th>
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<th>Sample</th>
<th>Methods</th>
<th>Country</th>
<th>Study</th>
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<td>• Training • Organization</td>
<td>Weak (cross-sectional) Weak (qualitative)</td>
<td>Mixed methods (survey and qualitative interviews)</td>
<td>4 nursing homes</td>
<td>70 care aides questionnaire semi-structured interviews</td>
<td>USA</td>
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<td>• Training • Organization</td>
<td>Weak</td>
<td>Qualitative (interviews)</td>
<td>1 home (for physical disability, dependent people due to chronic sickness) 22 care aides semi-structured interview</td>
<td>United Kingdom</td>
<td>Weeks and Fiske (1994) (11)</td>
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<td>• Training</td>
<td>Low moderate</td>
<td>Cross-sectional (survey)</td>
<td>11 nursing homes 98 care aides questionnaire</td>
<td>USA</td>
<td>Hardy et al. (1995) (64)</td>
<td></td>
</tr>
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### ORAL HEALTH EDUCATION OF PERSONAL SUPPORT WORKERS

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- **Training**
- **Organization**
- **Social Interaction**
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<th>Participants</th>
<th>Data Collection</th>
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<td>semi-structured interviews</td>
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<td>(5, 3, 6) care aides</td>
<td>1 focus group per nursing home</td>
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<td>13 care aides</td>
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- 47 care aides intervention group (60-minute in-service oral care education program) oral care knowledge test (Resident’s oral health assessed using the Modified Plaque Index and the Modified Gingival Index)
- 29 care aides control group oral care knowledge test (Resident’s oral health assessed using the Modified Plaque Index and the Modified Gingival Index)
<table>
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<td>Weak</td>
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<td>2280 care aides</td>
<td>1500 care aides</td>
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Adapted from Hoben et al. Table 3, pp 40-43 (6)
## Table 2. Data Analysis Example – Data Coded, Categorized and Themed

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<th>Code</th>
<th>Categories</th>
<th>Theme</th>
</tr>
</thead>
</table>
| “Convenient, I can do my online learning on my cell phone on the bus. (laughter)” | • convenient  
• location (On bus)  
• away from work (no time allotted during work)  
• quiet workspace  
• can review material at a later time or when needed  
• good…but would like hands on | Monologic learning  
online learning advantages | Desired method of learning |
| “but sometimes you like to ask a question, it’s not that anyone is there, right there to answer your question for you. Just go by what’s on the computer” | • one-way conversation  
• (can’t ask questions, confirm)  
• material is set and may not cover or all aspects or situations desired or address PSW’s learning needs  
• no direct monitoring  
• no interaction  
• not all people learn this way  
• not all material was relevant  
• not all needed information was provided (i.e., techniques for behavioural, physical and cognitive challenges for specific residents)  
• knowledge is good but don’t know how to apply (no hands-on practice provided)  
• competing responsibilities/distractions when completing module (i.e., children, work, personal time)  
• subject to technological challenges (i.e., no power, older equipment, interface, different technologies, learner abilities) | Monologic learning  
Online learning disadvantages | |
| “They can have an in-service too, different things what can be done. More than just something just reading it but physically, and then in-service, yeah.” | • can dialogue (ask questions)  
• progress of learners can be monitored  
• teamwork with colleagues | Dialogic learning | |
### ORAL HEALTH EDUCATION OF PERSONAL SUPPORT WORKERS

| Importance of Training is Endorsed and Supported by Management | In-service Advantages
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Can Be Engaging</td>
<td></td>
</tr>
</tbody>
</table>

| During Work Time Thus Difficult to Get Everyone Together |
| Not Well Attended |
| Don’t Know About It (Not Advertised) |
| Not Encouraged to Attend (Don’t Know Relevance for Attending) |
| During Previous Experiences There Were Difficulties Hearing What Was Being Said Because Many People Were Talking at Once |

| Dialogic Learning |
| In-service Disadvantages |

| Because if for the, for the… in-session with everybody, it’s like so much people then it’s like, sometimes you don’t hear, some people are talking, don’t hear… I think the computer is good ‘cause at least you can sit down, you can watch it |

| Can Gain Knowledge |
| Work Out Problems |
| Engaging/Interactive |

| Dialogic Learning |
| Advantages of In-person Coaching with SIDH |

| Like when they are like resistant to brush their teeth, what’s the reason? And that way the hygienist that you bring to us now. They have proper equipment to use it and see the proper ideas now and, and they can tell us, they can tell us already now, what is the problem, why she don’t like to open her mouth |

| Perception of PSWs Like Going Above RN’s Authority |
| Uncomfortable Requesting as Temporary PSW Fill Ins - Perceived to Be Overstepping Their Boundaries Over the Regular Full-time PSW |
| Unaware of Process, Don’t Know How It Works |
| Perceives as Extra Work |

| Dialogic Learning |
| Disadvantages of In-person Coaching with SIDH |

| Ah no, ya, I remember they have, ah— I was all— they b— they book a certain date and floor that they have in-service for this oral thing and I missed all of it so… |

| Perception of PSWs Like Going Above RN’s Authority |
| Uncomfortable Requesting as Temporary PSW Fill Ins - Perceived to Be Overstepping Their Boundaries Over the Regular Full-time PSW |
| Unaware of Process, Don’t Know How It Works |
| Perceives as Extra Work |

| Dialogic Learning |
| Disadvantages of In-person Coaching with SIDH |
### Table 3. Secondary Literature Search Keywords

<table>
<thead>
<tr>
<th>Theme</th>
<th>Keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning</td>
<td>learning, online learning, adult, hands-on, health, education, computer-assisted instruction, continuing education, monlog*, dialog*, dialogue, recall, memory, engage*, collabor*, read*, hear*, audio*, retain, retention, situated, community, community of practice, legitimate peripheral participation, learning, learning methods</td>
</tr>
<tr>
<td>Self-initiated dental hygienist</td>
<td>self-initiated dental hygienist, independent hygienist, dental hygienist, registered dental hygienist, geriatric, health personnel/allied health personnel</td>
</tr>
<tr>
<td>Timing of oral care</td>
<td>saliva, salivary, flow, xerostomia, brushing, oral hygiene, circadian, best practices, time, timing, seniors, geriatric.</td>
</tr>
<tr>
<td>Recall</td>
<td>recall, memory, short-term, long-term, attention, forgetting, stress</td>
</tr>
</tbody>
</table>
### Table 4. Characteristics of a Personal Support Worker Population Employed in a Long-Term Care Facility (n=88)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>% (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
</tr>
<tr>
<td>24 years old or younger</td>
<td>(&lt;5)*</td>
</tr>
<tr>
<td>25-29 years old</td>
<td>(&lt;5)*</td>
</tr>
<tr>
<td>30-34 years old</td>
<td>(&lt;5)*</td>
</tr>
<tr>
<td>35-39 years old</td>
<td>9.1 (8)</td>
</tr>
<tr>
<td>40-44 years old</td>
<td>9.1 (8)</td>
</tr>
<tr>
<td>45-49 years old</td>
<td>15.9 (14)</td>
</tr>
<tr>
<td>50-54 years old</td>
<td>20.5 (18)</td>
</tr>
<tr>
<td>55-59 years old</td>
<td>15.9 (14)</td>
</tr>
<tr>
<td>60 years or older</td>
<td>9.1 (8)</td>
</tr>
<tr>
<td>Missing</td>
<td>2.3 (2)</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>11.4 (10)</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>79.5 (70)</td>
</tr>
<tr>
<td>Male</td>
<td>12.5 (11)</td>
</tr>
<tr>
<td>Missing</td>
<td>2.3 (2)</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>5.7 (5)</td>
</tr>
<tr>
<td><strong>Work Experience (years)</strong></td>
<td></td>
</tr>
<tr>
<td>0-5 years</td>
<td>15.9 (14)</td>
</tr>
<tr>
<td>6-10 years</td>
<td>23.9 (21)</td>
</tr>
<tr>
<td>11-15 years</td>
<td>10.2 (9)</td>
</tr>
<tr>
<td>16-20 years</td>
<td>26.1 (23)</td>
</tr>
<tr>
<td>Over 20 years</td>
<td>15.9 (14)</td>
</tr>
<tr>
<td>Missing</td>
<td>2.3 (2)</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>5.7 (5)</td>
</tr>
<tr>
<td><strong>Education from grade 1 (years)</strong></td>
<td></td>
</tr>
<tr>
<td>0-5 years</td>
<td>(&lt;5)*</td>
</tr>
<tr>
<td>6-10 years</td>
<td>8.0 (7)</td>
</tr>
<tr>
<td>11-15 years</td>
<td>33.0 (29)</td>
</tr>
<tr>
<td>16-20 years</td>
<td>27.3 (24)</td>
</tr>
<tr>
<td>Over 20 years</td>
<td>6.8 (6)</td>
</tr>
<tr>
<td>Missing</td>
<td>2.3 (2)</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>20.5 (18)</td>
</tr>
</tbody>
</table>

*Note: signifies a cell count that is less than five
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>% (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shift Typically Worked</strong></td>
<td></td>
</tr>
<tr>
<td>Day shift</td>
<td>47.7 (42)</td>
</tr>
<tr>
<td>Evening shift</td>
<td>23.9 (21)</td>
</tr>
<tr>
<td>Night shift</td>
<td>13.6 (12)</td>
</tr>
<tr>
<td>All shifts</td>
<td>6.8 (6)</td>
</tr>
<tr>
<td>Missing</td>
<td>2.3 (2)</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>5.7 (5)</td>
</tr>
<tr>
<td><strong>Employment Status</strong></td>
<td></td>
</tr>
<tr>
<td>Part-time</td>
<td>48.9 (43)</td>
</tr>
<tr>
<td>Full-time</td>
<td>45.5 (40)</td>
</tr>
<tr>
<td>On-call</td>
<td>0.0 (0)</td>
</tr>
<tr>
<td>Missing</td>
<td>2.3 (2)</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>3.4 (3)</td>
</tr>
<tr>
<td><strong>Primary Language</strong></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>26.1 (23)</td>
</tr>
<tr>
<td>Filipino/Tagalog</td>
<td>9.1 (8)</td>
</tr>
<tr>
<td>Amharic</td>
<td>(&lt;5)*</td>
</tr>
<tr>
<td>English and Filipino/Tagalog</td>
<td>(&lt;5)*</td>
</tr>
<tr>
<td>*Blocked</td>
<td>(&lt;5)*</td>
</tr>
<tr>
<td>Missing</td>
<td>55.7 (49)</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>1.1 (1)</td>
</tr>
<tr>
<td><strong>Resident’s Functional Capacity</strong></td>
<td></td>
</tr>
<tr>
<td>Requires minimal assistance</td>
<td>(&lt;5)*</td>
</tr>
<tr>
<td>Requires moderate assistance</td>
<td>6.8 (6)</td>
</tr>
<tr>
<td>Requires full assistance</td>
<td>71.6 (63)</td>
</tr>
<tr>
<td>Missing</td>
<td>2.3 (2)</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>15.9 (14)</td>
</tr>
</tbody>
</table>

*Note: signifies a cell count that is less than five
Table 5. Comparison of Pre- and Post- Oral Health Training Session Survey Multiple Choice Responses of Personal Support Workers Employed in a Long-Term Care Facility (n=76)

<table>
<thead>
<tr>
<th>Question</th>
<th>Pre % (n)</th>
<th>Post % (n)</th>
<th>Difference %</th>
<th>p Value McNemar</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. As a healthcare worker what categories are you using to assess your clients on a daily basis?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Lips, tongue, gums and tissues</td>
<td>0% (0)</td>
<td>2.6% (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Saliva and oral cleanliness</td>
<td>2.3% (2)</td>
<td>1.3% (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Natural and/or dentures</td>
<td>9.3% (8)</td>
<td>3.8% (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Dental pain</td>
<td>0% (0)</td>
<td>0% (0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. All of the above</td>
<td>55.8% (48)</td>
<td>60.3% (47)</td>
<td>4.5%</td>
<td>0.690</td>
</tr>
<tr>
<td>6. All of the above except dental pain</td>
<td>32.6% (28)</td>
<td>32.1% (25)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>II. What steps can you take to clean the mouth of a frail client with a full set of dentures? The client is nourished through a feeding tube and able to sit in a wheelchair (wheelchair locked).</td>
<td>(86)</td>
<td>(78)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. The client doesn't eat through their mouth so they don't need daily cleaning.</td>
<td>2.3% (2)</td>
<td>2.6% (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Sit behind the client and with your non-dominant hand, hold and support the client’s head.</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gently wipe the client's mouth with a warm washcloth using your dominant hand, while ensuring to clean the inner cheeks, tongue, gums, the roof of the mouth, and under the tongue.</td>
<td>24.4% (21)</td>
<td>28.2% (22)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Answers b and c only</td>
<td>73.3% (63)</td>
<td>69.2% (54)</td>
<td>(-4.1%)</td>
<td>1.000</td>
</tr>
<tr>
<td>III. How many times a day should you clean a resident's mouth?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. 0</td>
<td>1.2% (1)</td>
<td>1.3% (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. 1</td>
<td>3.5% (3)</td>
<td>1.3% (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. 2</td>
<td>69.8% (60)</td>
<td>84.6% (66)</td>
<td>14.8%</td>
<td>0.001</td>
</tr>
<tr>
<td>4. 3</td>
<td>25.6% (22)</td>
<td>12.8 (10)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### ORAL HEALTH EDUCATION OF PERSONAL SUPPORT WORKERS

<table>
<thead>
<tr>
<th>Question</th>
<th>Pre % (n)</th>
<th>Post % (n)</th>
<th>Difference %</th>
<th>P Value McNemar</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV. What is the best method for removing oral bacterial plaque?</td>
<td>(86)</td>
<td>(78)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Toothpaste</td>
<td>1.2% (1)</td>
<td>3.8% (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Using a medium bristle toothbrush</td>
<td>4.7% (4)</td>
<td>1.3% (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. The mechanical action of brushing</td>
<td>4.7% (4)</td>
<td>14.1% (11)</td>
<td>2.45%</td>
<td>0.344</td>
</tr>
<tr>
<td>4. All of the above</td>
<td>81.4% (70)</td>
<td>76.9% (60)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. None of the above</td>
<td>8.1% (7)</td>
<td>3.8% (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V. It is necessary to wear proper Personal Protective Equipment including gloves and a mask when providing mouth care to a resident in order to protect yourself and your client?</td>
<td>(86)</td>
<td>(78)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. True</td>
<td>77.9% (67)</td>
<td>97.4% (76)</td>
<td>19.5%</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>2. False</td>
<td>22.1% (19)</td>
<td>2.6% (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VI. When approaching someone with dementia it's important to: - why not statistically significant based on response.</td>
<td>(86)</td>
<td>(78)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Speak very loudly as the resident is likely hard of hearing</td>
<td>1.2% (1)</td>
<td>1.3% (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. It's best to provide an individual approach as every resident has different needs</td>
<td>2.3% (2)</td>
<td>1.3% (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. It doesn't matter as their dementia has no impact on their care</td>
<td>0.0% (0)</td>
<td>0.0% (0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Approach them in a calm manner and validate the reality they are experiencing</td>
<td>7.0% (6)</td>
<td>9.0% (7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. b and d</td>
<td>89.5% (77)</td>
<td>88.5% (69)</td>
<td>(-1.0%)</td>
<td>1.000</td>
</tr>
<tr>
<td>VII. Which of the following responses is NOT true about providing mouth care to residents in long-term care?</td>
<td>(86)</td>
<td>(78)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Only residents with teeth require mouth care</td>
<td>68.6% (59)</td>
<td>76.9% (60)</td>
<td>8.3%</td>
<td>0.115</td>
</tr>
<tr>
<td>2. Mouth care should be provided twice a day to all resident</td>
<td>12.8 (11)</td>
<td>6.4% (5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Mouth care can be done anywhere the resident is comfortable</td>
<td>5.8 (5)</td>
<td>7.7% (6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. The primary goal of mouth care is to disrupt bacteria plaque colonies within the mouth</td>
<td>12.8 (11)</td>
<td>9.0% (7)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## VIII. Soft broken-down areas on tooth surfaces:

<table>
<thead>
<tr>
<th>Question</th>
<th>Pre % (n)</th>
<th>Post % (n)</th>
<th>Difference %</th>
<th>(n) p Value</th>
<th>McNemar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are a normal part of aging</td>
<td>14.0% (12)</td>
<td>9.0% (7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. <strong>Could be a sign of a cavity</strong></td>
<td><strong>62.8% (54)</strong></td>
<td><strong>69.2% (54)</strong></td>
<td><strong>6.4%</strong></td>
<td><strong>0.523</strong></td>
<td></td>
</tr>
<tr>
<td>3. Indicate a strong enamel surface</td>
<td>4.7% (4)</td>
<td>12.8% (10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. None of the above</td>
<td>18.6% (16)</td>
<td>9.0% (7)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## IX. Are you aware of and/or have you used the Oral Health Assessment Tool (OHAT)?

<table>
<thead>
<tr>
<th>Question</th>
<th>Pre % (n)</th>
<th>Post % (n)</th>
<th>Difference</th>
<th>(n) p Value</th>
<th>McNemar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Aware of the OHAT</td>
<td>45.3% (39)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Aware of and used the OHAT</td>
<td>18.6% (16)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. None of the above</td>
<td>36.0% (31)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Table 6A.** Comparison of Likert-Scale Pre- and Post- Oral Health Training Session Survey Responses of Personal Support Workers Employed in a Long-Term Care Facility (n=76)

<table>
<thead>
<tr>
<th>Question</th>
<th>Pre-Oral Health Training Session Survey mean (n) (SD)</th>
<th>Post-Oral Health Training Session Survey mean (n) (SD)</th>
<th>Mean differences (SD)</th>
<th>p Value Paired Samples T test</th>
<th>p Value Wilcoxon Signed Ranks Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>How comfortable are you in your ability to provide oral healthcare such as brushing your client's teeth? Scale 1-10 where 1 is not confident and 10 is extremely confident, using increments of one.</td>
<td>8.53 (76) (2.126)</td>
<td>8.82 (76) (1.902)</td>
<td>0.289 (2.103)</td>
<td>.234</td>
<td>0.051</td>
</tr>
<tr>
<td>How confident are you to correctly identify oral health concerns based on your client's oral health condition? Scale 1-10 where 1 is not at all confident and 10 is extremely confident.</td>
<td>7.67 (76) (2.138)</td>
<td>8.59 (76) (1.954)</td>
<td>0.921 (1.910)</td>
<td>&lt; 0.001</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>
Table 6B Likert-Scale of Post- Oral Health Training Session Survey Responses of Personal Support Workers Employed in a Long-Term Care Facility (n=78)

<table>
<thead>
<tr>
<th>Question</th>
<th>Post-Education Questionnaire mean (n) (SD)</th>
</tr>
</thead>
</table>
| Now that you have completed the online education session how comfortable are you to start referring oral health concerns to a nurse? Level of comfort rated on a scale from 1 to 10 where 1 is not at all comfortable and 10 is extremely comfortable. Increments of one used. | 8.92 (78)  
1.822 |
| Has this online education session provided you with new information to assist you in delivering oral healthcare to long-term care residents? Level of usefulness of the information provided rated on a scale from 1 to 10 where 1 is not useful and 10 is very useful. Increments of one used. | 8.67 (78)  
1.925 |
<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree % (n)</th>
<th>Agree % (n)</th>
<th>Neutral % (n)</th>
<th>Disagree % (n)</th>
<th>Strongly Disagree % (n)</th>
<th>Missing % (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am satisfied with the training I received for oral care delivery prior to the online education session</td>
<td>33.0 (29)</td>
<td>44.3 (39)</td>
<td>10.2 (9)</td>
<td>1.1 (1)</td>
<td>1.1 (1)</td>
<td>10.2 (9)</td>
</tr>
<tr>
<td>The content in the online education session enhanced my knowledge of oral healthcare for LTC residents.</td>
<td>29.5 (26)</td>
<td>47.8 (42)</td>
<td>11.4 (10)</td>
<td>1.1 (1)</td>
<td>0.0 (0)</td>
<td>10.2 (9)</td>
</tr>
<tr>
<td>This online education session addressed learning needs.</td>
<td>25.0 (22)</td>
<td>50.0 (44)</td>
<td>12.5 (11)</td>
<td>1.1 (1)</td>
<td>1.1 (1)</td>
<td>10.2 (9)</td>
</tr>
<tr>
<td>The material presented in the online education session was clear and easy to understand.</td>
<td>38.6 (34)</td>
<td>38.6 (34)</td>
<td>10.2 (9)</td>
<td>2.3 (2)</td>
<td>0.0 (0)</td>
<td>10.2 (9)</td>
</tr>
<tr>
<td>I will be able to share the knowledge gained from the online education session with others.</td>
<td>28.4 (25)</td>
<td>46.6 (41)</td>
<td>13.6 (12)</td>
<td>1.1 (1)</td>
<td>0.0 (0)</td>
<td>10.2 (9)</td>
</tr>
<tr>
<td>The use of case studies in the online education session helped gain a better understanding of how to deliver oral care to residents</td>
<td>31.8 (28)</td>
<td>45.5 (40)</td>
<td>10.2 (9)</td>
<td>2.3 (2)</td>
<td>0.0 (0)</td>
<td>10.2 (9)</td>
</tr>
<tr>
<td>The online education session prepared me to screen residents for oral health concerns.</td>
<td>27.3 (24)</td>
<td>47.7 (42)</td>
<td>10.2 (9)</td>
<td>3.4 (3)</td>
<td>1.1 (1)</td>
<td>10.2 (9)</td>
</tr>
<tr>
<td>This online education session will enhance my oral care delivery methods.</td>
<td>31.8 (28)</td>
<td>46.6 (41)</td>
<td>8.0 (7)</td>
<td>3.4 (3)</td>
<td>0.0 (0)</td>
<td>10.2 (9)</td>
</tr>
<tr>
<td>The visual quality of the online education session was satisfactory.</td>
<td>31.8 (28)</td>
<td>46.6 (41)</td>
<td>6.8 (6)</td>
<td>4.5 (4)</td>
<td>0.0 (0)</td>
<td>10.2 (9)</td>
</tr>
<tr>
<td>The audio component of the online education session was satisfactory.</td>
<td>27.3 (24)</td>
<td>50.0 (44)</td>
<td>8.0 (7)</td>
<td>4.5 (4)</td>
<td>0.0 (0)</td>
<td>10.2 (9)</td>
</tr>
<tr>
<td>It was easy for me to complete the online education session.</td>
<td>27.3 (24)</td>
<td>45.5 (40)</td>
<td>13.6 (12)</td>
<td>3.4 (3)</td>
<td>0.0 (0)</td>
<td>10.2 (9)</td>
</tr>
<tr>
<td>I would recommend this online education session to others in my field of work.</td>
<td>25.0 (22)</td>
<td>47.7 (42)</td>
<td>12.5 (11)</td>
<td>4.5 (4)</td>
<td>0.0 (0)</td>
<td>10.2 (9)</td>
</tr>
<tr>
<td>Overall I was satisfied with the online education session.</td>
<td>30.7 (27)</td>
<td>50.0 (44)</td>
<td>5.7 (5)</td>
<td>3.4 (3)</td>
<td>0.0 (0)</td>
<td>10.2 (9)</td>
</tr>
</tbody>
</table>
Table 8. Characteristics of a Personal Support Worker Population that Participated in Focus Groups or One-On-One Interviews (n=21)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>% (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>(&lt;5)*</td>
</tr>
<tr>
<td>30-39</td>
<td>(&lt;5)*</td>
</tr>
<tr>
<td>40-49</td>
<td>32.8 (8)</td>
</tr>
<tr>
<td>50-59</td>
<td>28.6 (6)</td>
</tr>
<tr>
<td>60-69</td>
<td>(&lt;5)*</td>
</tr>
<tr>
<td>Missing</td>
<td>4.8 (1)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>*Note</td>
</tr>
<tr>
<td>Male</td>
<td></td>
</tr>
<tr>
<td>Education from grade 1 (years)</td>
<td></td>
</tr>
<tr>
<td>11-15</td>
<td>(11)</td>
</tr>
<tr>
<td>16-20</td>
<td>(6)</td>
</tr>
<tr>
<td>21-25</td>
<td>(&lt;5)*</td>
</tr>
<tr>
<td>26-30</td>
<td>0</td>
</tr>
<tr>
<td>31-35</td>
<td>0</td>
</tr>
<tr>
<td>36-40</td>
<td>(&lt;5)*</td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
</tr>
<tr>
<td>Invalid response</td>
<td>0</td>
</tr>
<tr>
<td>Work Experience (years)</td>
<td></td>
</tr>
<tr>
<td>1-10</td>
<td>(6)</td>
</tr>
<tr>
<td>11-20</td>
<td>(7)</td>
</tr>
<tr>
<td>21-30</td>
<td>(5)</td>
</tr>
<tr>
<td>Missing</td>
<td>(1)</td>
</tr>
<tr>
<td>Invalid response</td>
<td>9.5 (2)</td>
</tr>
<tr>
<td>Primary Language</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>61.9 (13)</td>
</tr>
<tr>
<td>Tagalog</td>
<td>28.6 (6)</td>
</tr>
<tr>
<td>Number of Languages Spoken</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>23.8 (5)</td>
</tr>
<tr>
<td>2</td>
<td>38.1 (8)</td>
</tr>
<tr>
<td>3 or 4</td>
<td>28.6 (6)</td>
</tr>
<tr>
<td>Missing</td>
<td>9.5 (2)</td>
</tr>
<tr>
<td>Shift typically worked</td>
<td></td>
</tr>
<tr>
<td>Day shift</td>
<td>71.4 (15)</td>
</tr>
<tr>
<td>Evening shift</td>
<td>(&lt;5)*</td>
</tr>
<tr>
<td>Night shift</td>
<td>0.0 (0)</td>
</tr>
<tr>
<td>All shifts</td>
<td>(&lt;5)*</td>
</tr>
<tr>
<td>Day + Evening shifts</td>
<td>(&lt;5)*</td>
</tr>
<tr>
<td>Characteristic</td>
<td>% (n)</td>
</tr>
<tr>
<td>-----------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td><strong>Employment Status</strong></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>52.4 (11)</td>
</tr>
<tr>
<td>Part-time</td>
<td>42.9 (9)</td>
</tr>
<tr>
<td><strong>Functional capacity of Typical Resident</strong></td>
<td></td>
</tr>
<tr>
<td>Requires minimal assistance</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>71.4 (15)</td>
</tr>
<tr>
<td>No</td>
<td>28.6 (6)</td>
</tr>
<tr>
<td>Requires moderate assistance</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>61.9 (13)</td>
</tr>
<tr>
<td>No</td>
<td>38.1 (8)</td>
</tr>
<tr>
<td>Requires full assistance</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>28.6 (6)</td>
</tr>
<tr>
<td>No</td>
<td>71.4 (15)</td>
</tr>
<tr>
<td><strong>Frequency of Resident Oral Care</strong></td>
<td><em>Note</em></td>
</tr>
<tr>
<td>Every shift</td>
<td></td>
</tr>
<tr>
<td>Daily</td>
<td></td>
</tr>
<tr>
<td>1x a day per week</td>
<td></td>
</tr>
<tr>
<td>Per month</td>
<td></td>
</tr>
<tr>
<td>12 per week</td>
<td></td>
</tr>
<tr>
<td>10 per week</td>
<td></td>
</tr>
<tr>
<td>4 per week</td>
<td></td>
</tr>
<tr>
<td>Per week</td>
<td></td>
</tr>
<tr>
<td>5-7 per week</td>
<td></td>
</tr>
<tr>
<td>At least 7 per week</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td></td>
</tr>
<tr>
<td><strong>Frequency of Resident Screening</strong></td>
<td><em>Note</em></td>
</tr>
<tr>
<td>Daily</td>
<td></td>
</tr>
<tr>
<td>1 a day per week</td>
<td></td>
</tr>
<tr>
<td>5-7 per week</td>
<td></td>
</tr>
<tr>
<td>2 per week</td>
<td></td>
</tr>
<tr>
<td>Per week</td>
<td></td>
</tr>
<tr>
<td>4 per month</td>
<td></td>
</tr>
<tr>
<td>2 per month</td>
<td></td>
</tr>
<tr>
<td>1 per month</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td></td>
</tr>
</tbody>
</table>

*Note: responses varied and generally signifies that the cell count is less than five*
### Table 9. Mixed Methods Convergent Design Findings

<table>
<thead>
<tr>
<th>Theme</th>
<th>Relevant QUANTITATIVE results (What)</th>
<th>Relevant QUALITATIVE results (How)</th>
<th>Integration: Convergence, divergence, uniqueness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Recall</td>
<td>Results regarding PSWs:</td>
<td>Module was reported as beneficial. PSWs lacked recall regarding oral health care online module content. Details could not be recalled when asked about specifics.</td>
<td>Divergent.</td>
</tr>
<tr>
<td></td>
<td>• believed training was highly useful (8.67/10 usefulness)*LI</td>
<td>High resident functional capacity of full assistance (71.4%) and lack of designated work time prohibit the completion of online training during work hours.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• satisfied with knowledge enhancement (+77% A, SA)*FB</td>
<td>Frustration and discontent were reported given the volume of online modules PSWs are expected to complete (on average 1 course/3 days).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• agreed that the online module was easy to understand (+77% A, SA)*FB</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• believe they are capable of sharing new knowledge with others (+75% A, SA)*FB</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• typical resident functional capacity requiring full assistance (71.6%)*DE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memo</td>
<td>PSW online module training 13 February - 2 April 2018.</td>
<td>Focus groups/one-on-one interviews 31 May – 24 July 2018.</td>
<td>Divergent.</td>
</tr>
<tr>
<td></td>
<td>No designated work time to complete.</td>
<td>An approximate 10-minute PowerPoint presentation was shown prior to each focus group/interviews session to remind PSWs of online training.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not all SME groups (PSWs, nurses, clinical managers, etc.) included/consulted in planning phase of QUAN study.</td>
<td>Not all SME groups (PSWs, nurses, etc.) were included in planning phase of QUAL study.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Theme</td>
<td>Relevant QUANTITATIVE results (What)</td>
<td>Relevant QUALITATIVE results (How)</td>
<td>Integration: Convergence, divergence, uniqueness</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>2. Learning Needs/Methods</td>
<td>Online module addressed majority of PSW’s learning 75% A, SA)*FB</td>
<td>PSWs voiced a strong desire to maintain/improve oral health of residents. Assistance requested for specific/complex resident needs (cognitive, behaviour, physical). Online module considered by PSWs as “refresher” training. PSWs recommend module be augmented with practical and dialogic learning (i.e., coaching and/or in-service by a SME). PSWs aware of new referral process and those who were made aware of it during the focus groups/interviews considered it beneficial and the involvement of the SIDH as ideal. PSWs considered the collaborative interaction with the SIDH for complex resident issues as an excellent learning opportunity.</td>
<td>Divergent. Initially the online module was thought to have met the learning needs of the learners based on the quantitative data. However, during focus groups and interviews, PSWs voiced that the learning was a refresher of what they already knew. They desire practical (hands-on) training with a SME that is dialogic, situated and leading to legitimate peripheral participation.</td>
</tr>
<tr>
<td></td>
<td>The case studies provided greater insight on how to screen/provide oral care: • post-survey (77.3%)*MC • (75% A, SA)*FB • 8.67/10.00, highly confident, $p&lt;0.001$) *LI</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The majority of PSWs have 11 or more years of education (67.1%), and a non-response rate (20.5%)*DE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memo</td>
<td>Some pre-survey multiple choice responses were already high thus improvement not statistically significant.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Survey questions did not relate to preferred method(s) of learning</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### ORAL HEALTH EDUCATION OF PERSONAL SUPPORT WORKERS

#### Theme: Timing of Oral Care

<table>
<thead>
<tr>
<th>Relevant QUANTITATIVE results (What)</th>
<th>Relevant QUALITATIVE results (How)</th>
<th>Integration: Convergence, divergence, uniqueness</th>
</tr>
</thead>
<tbody>
<tr>
<td>When questioned about the frequency of resident mouth care PSWs had a statistically significant knowledge increase of 21.1% ($p &lt; 0.001$) *MC (Figure 9)</td>
<td>Brushing residents’ teeth/dentures occurs in the morning before breakfast. Evening practices are unknown.</td>
<td>Unique</td>
</tr>
<tr>
<td>PSWs’ work shift: • day (47.7%); • evening (23.9%); • night shift (13.6%)*DE</td>
<td>No night shift and little evening shift representation during QUAL sessions.</td>
<td>Knowledge of frequency of brushing is known, however, behaviour of brushing is unknown.</td>
</tr>
<tr>
<td>Functional capacity of residents needing full assistance is high (75%)*DE</td>
<td>Timing of shifts: • day 7:00 am – 3:00 pm • evening 3:00 pm – 11:00 pm • night 11:00 pm – 7:00 am</td>
<td>Finding appears to be related to an institutional factor rather than PSW learning as there are no current institutional policies or guidelines regarding resident OH care in the evening.</td>
</tr>
<tr>
<td>Memo There were no direct quantitative survey questions regarding timing of oral health care.</td>
<td>PSW:resident ratio; • day 1:7 • evening 1:14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High functional capacity of typical resident requiring full assistance (71.4%).</td>
<td></td>
</tr>
</tbody>
</table>

Adaptation of Table from 2015 Network for Canadian Oral Health Research (NCHOHR) Summer Institute in Applied Mixed Methods in Oral Health Research at McGill University Faculty of Dentistry

Note

*MC: multiple choice response
*FB: Feedback response
*LI: Likert-scale response
*DE: Demographic response
A: Agree
SA: Strongly Agree
<table>
<thead>
<tr>
<th></th>
<th><strong>Monologic teaching</strong></th>
<th><strong>Dialogic mediation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>Transferred from teacher to learner(s)</td>
<td>Jointly constructed by learner(s) and teacher(s)</td>
</tr>
<tr>
<td>Learners</td>
<td>Passive recipients of knowledge</td>
<td>Active appropriators and constructors of knowledge</td>
</tr>
<tr>
<td>Teacher</td>
<td>Knowledge transmitter, unilateral authority</td>
<td>Mediator, implying: co-learner guide, democratic authority</td>
</tr>
<tr>
<td>Relationships and context</td>
<td>Individualistic, impersonal relationships among learners and between teachers and learners, teacher- and content centred, lecture-bound</td>
<td>Cooperative, mutual respect, learning-centered, power of lecture diminished</td>
</tr>
</tbody>
</table>

Source: Gravett and Henning (1998) (111)
Figure 1. Percentage distribution of caregivers by type of housing of primary care receiver, by age group, 2007 and 2012 (33)

1. Includes only care receivers whose caregiver is aged 45 and over.

Figure 2. Percentage distribution of caregivers by age group of primary care receiver, by type of housing, 2012 (33)


Copyright Permission granted 10 October 2018, Appendix M
Figure 3. Conceptual Model – Internal and external factors of personal support workers that impact daily oral health care of residents in a long-term care facility.

Internal Factors
- Knowledge
- Beliefs
- Behaviour
- Attitude
- Motivation
- Experience
- Culture
- Values
- Ethics

Personal Support Worker (Direct Care Provider)

External Factors
- Training
- Availability
- Support
- Motivation
- Expectations
- Accountability
- Resources
- Job description
- Policy/Guidelines
- Obstacles
- Patient compliance
- Patient health
- Patient cognition

Resident

Outcomes
- Pain/Pain-free
- Function
- Nutrition
- Health
- Speech
- Social
- Esthetics
- Confidence
- Quality of Life
Figure 4. Oral health education study timeline
**Figure 5A.** Current method of resident referral for oral health care concerns

PSW → Nurse → Medical Doctor → Dentist → SIDH

**Figure 5B.** Trialed Method of Resident Referral for Oral Health Care Concerns

PSW → Nurse → SIDH → Dentist → Medical Doctor
Figure 6. A convergent parallel mixed methods design of personal support worker oral health education (90)

**Procedures**
- Pre/post-tests
- PSWs
- n = 88
- Data collection: demographic, pre- & post-oral health module, feedback surveys
- Variables: age, sex, education, shift, status language, resident functional capacity

**Products**
- Feb – Apr 2018
  - Quantitative Data Collection
  - Database with variables/scales

**Procedures**
- Jun – Jul 2018
  - Qualitative Data Collection
  - Focus Groups/Interviews: PSWs
  - n = 23
  - Central phenomena: oral health training

**Products**
- Text database transcribed for easy coding

**Procedures**
- Jul 2018
  - Cleaning database
  - Input into software Program
  - Descriptive results
  - Inferential results

**Products**
- Quantitative Data Analysis
- Statistical results in tables
- Significant results, effect sizes, confidence intervals

**Products**
- Merged Interpretation
- Phase 1 (Single Phase Design)

**Products**
- Jul 2018
  - Quantitative Data Analysis

**Products**
- List of quotes, codes, and themes

Figure 7. Data analysis depicted in four steps (101)

Adapted from Source (101)
Figure 8. Personal support worker online module completion and consent counts (n=88) for quantitative component of study.
Ineligible: PSWs (n=12) who did not consent to participate
Figure 9. Pre- and post-survey - Frequency of daily resident oral health care as reported by personal support workers employed in long-term care (n=76)

Legend
1 Correct pre- and post-survey responses (n = 49)
2 Incorrect pre-survey and correct post-survey responses (n = 16)
3 Incorrect pre- and post-survey responses (n = 9)
4 Correct pre-survey and incorrect post-survey responses (n = 2)

Question: How many times a day should you clean a resident’s mouth?

Multiple Choice Options: 0, 1, 2, 3 times per day.

Correct Response: 2 (times per day)

McNemar’s Odds Ratio = 16/2

\[ \frac{16}{2} = 8, p < 0.001 \]
Figure 10. Comparison of pre- and post-survey - Requirement to wear personal protective equipment as reported by personal support workers employed in long-term care (n = 76)

Legend
1 Correct pre- and post-survey responses (n = 59)
2 Incorrect pre-survey and correct post-survey responses (n = 15)
3 Incorrect pre- and post-survey responses (n = 2)
4 Correct pre-survey and incorrect post-survey responses (n = 0)

Question: It is necessary to wear proper Personal Protective Equipment including gloves and a mask when providing mouth care to a resident in order to protect yourself and the resident?

Multiple Choice Options: True or False

Correct Response: True

McNemar’s Odds Ratio could not be calculated (15/0), $p < 0.001$
**Figure 11.** Comparison of pre- and post-survey – Likert responses regarding confidence in ability to provide resident oral health care

<table>
<thead>
<tr>
<th></th>
<th>Pre-Survey</th>
<th>Post-Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Confidence in Ability to Provide Resident Oral Health Care</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8.53</td>
<td>8.82</td>
</tr>
</tbody>
</table>

**Legend**
1 Not confident; thru to 10 Extremely confident

**Question:** How confident are you in your ability to provide oral health care such as brushing your client’s teeth?

**Likert-scale response:** 1 = not confident thru to 10 = extremely confident
Figure 12. Comparison of pre- and post-survey – Likert responses regarding confidence identifying resident oral health concerns

<table>
<thead>
<tr>
<th></th>
<th>Pre-Survey</th>
<th>Post-Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidence Identifying Resident Oral Health Concerns</td>
<td>7.67</td>
<td>8.59</td>
</tr>
</tbody>
</table>

Likert-scale

**Legend**
1 Not confident; thru to 10 Extremely confident

**Question:** How confident are you to correctly identify oral health concerns based on your client's oral health condition?

**Likert-scale response:** 1 = not confident thru to 10 = extremely confident
**Figure 13.** Personal support workers’ overall satisfaction with the online module

<table>
<thead>
<tr>
<th>Overall satisfaction</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Strongly Agree</td>
<td>22%</td>
</tr>
<tr>
<td>2 Agree</td>
<td>42%</td>
</tr>
<tr>
<td>3 Neutral</td>
<td>11%</td>
</tr>
<tr>
<td>4 Disagree</td>
<td>3%</td>
</tr>
<tr>
<td>5 Strongly Disagree</td>
<td>0%</td>
</tr>
</tbody>
</table>

**Legend**

1 Strongly Agree
2 Agree
3 Neutral
4 Disagree
5 Strongly Disagree
**Figure 14.** Personal support workers recommend the online session to others

Legend
1 Strongly Agree
2 Agree
3 Neutral
4 Disagree
5 Strongly Disagree
Appendix A – Sample Questions and/or Recommendations

**Sample Questions and/or Recommendations Submitted by the Principal Investigator to the Long-Term Care Facility**

A. Pre-Online Module Survey recommendation for inclusion by PI:

> The best time to brush/clean a client’s mouth is at night before bed.

- True
- False

Correct response is **True** (D. Pawluk, personal communication, 22 November 2017; H. P. Lawrence, personal communication, 23 November 2017)

B. Post-Online Module Survey recommendation for inclusion by PI:

> Having completed the online training, the best time to brush/clean a client’s teeth and/or mouth is at night.

- True
- False

Correct response is **True** (H.P. Lawrence, personal communication, 26 November 2017)

C. Pre- and Post-Online Module Survey recommendation for removal by PI:

> Brushing once a week perfectly is more beneficial for overall health than brushing poorly everyday.

- True
- False

Expected response was **False**.

Recommendation by PI for question to be removed or reworded as desired message may be miscommunicated. Recommended replacement question offered by PI was:

> It is beneficial to have teeth brushed at least once per day.

- True
- False

Expected response was **True**. (D. Pawluk, personal communication, 22 November 2017; H.P. Lawrence, personal communication, 26 November 2017)
Appendix A – Sample Questions and/or Recommendations

D. Demographic Question submitted by PI:

What is your typical client health profile?

☐ Minimal assistance
☐ Moderate assistance
☐ Full assistance
☐ I prefer not to answer (D. Pawluk, personal communication, 23 November 2017)

Demographic Question revision recommendation to:

What is your typical client functional capacity?

☐ Minimal assistance
☐ Moderate assistance
☐ Full assistance
☐ I prefer not to answer (LTC facility, correspondence, 23 November 2017; H.P. Lawrence, personal communication, 26 November 2017)

E. Focus Group Initial Probe Question:

Do you feel that this education module is useful for [PSWs/nurses] in LTC? (D. Pawluk, personal communication, 22 November 2017)

Focus Group Probe Question addition recommended by PI:

How do you feel that this education module is useful for [PSWs/nurses] in LTC? (D. Pawluk, personal communication, 22 November 2017)

F. Focus Group Initial Probe Question:

Did this education module address your learning needs? (D. Pawluk, personal communication, 22 November 2017)

Focus Group additions recommended by PI:

What learning needs did this education module address? (D. Pawluk, personal communication, 22 November 2017)

What challenges are you experiencing? (D. Pawluk, personal communication, 22 November 2017; C. Dale, personal communication, 23 March 2018)
Appendix B – Demographic Questionnaire

Demographic Questionnaire

Please complete the following demographic questionnaire by answering each question.

1. What age group do you belong to?
   - 24 years or younger
   - 25-29 years old
   - 30-34 years old
   - 35-39 years old
   - 40-44 years old
   - 45-49 years old
   - 50-54 years old
   - 55-59 years old
   - 60 years or older
   - I prefer not to answer

2. What sex are you?
   - Female
   - Male
   - I prefer not to answer

3. How many years of work experience do you have in the health care field?
   ____________ years
   - I prefer not to answer

4. How many years of education do you have?
   ____________ years
   - I prefer not to answer

5. What shift do you typically work?
   - Day shift
   - Evening shift
   - Night shift
   - I work all shifts
   - I prefer not to answer
6. What is your primary language (mother tongue)? __________________
   I prefer not to answer

7. What is the functional capacity of your typical client?
   ☐ Requires minimal assistance
   ☐ Requires moderate assistance
   ☐ Requires full assistance
   ☐ I prefer not to answer

8. What is your occupation?
   ☐ Personal Support Worker (PSW)
   ☐ Registered Practice Nurse (RPN)
   ☐ Registered Nurse (RN)
   ☐ Other. Please specific __________________
   ☐ I prefer not to answer

9. Do you work on a part-time or full-time basis?
   ☐ Part-time
   ☐ Full-time
   ☐ On call
   ☐ I prefer not to answer
Appendix C – Pre-Oral Health Training Module Survey

**Pre-Oral Health Training Module Survey**

Please complete the following survey by selecting only one answer for each question unless otherwise instructed.

1. How comfortable are you in your ability to provide oral healthcare, such as brushing your client’s teeth? Please rate your comfort level on a scale from 1 to 10, where 1 is not confident and 10 is extremely confident.

   1          2          3          4          5          6          7          8          9          10

2. Are you aware of and/or have you used the Oral Health Assessment Tool (OHAT)?
   a. I am aware of the OHAT
   b. I am aware of and have used the OHAT
   c. None of the above

3. As a health care worker, what categories are you using to assess your clients on a daily basis?
   a. lips, tongue, gums and tissues
   b. saliva and oral cleanliness
   c. natural and/or dentures, as applicable for the client
   d. dental pain
   e. all of the above
   f. answers a, b and c only

4. How confident are you to correctly identify oral health concerns, based on your client’s oral health condition? Please rate your level of confidence on a scale from 1 to 10, where 1 is not at all confident and 10 is extremely confident.

   1          2          3          4          5          6          7          8          9          10

Please feel free to comment or elaborate.

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________
5. What steps can you take to clean the mouth of a frail client with a full set of dentures? The client is nourished through a feeding tube and able to sit in a wheelchair (chair wheels locked).
   a. [ ] The client doesn’t eat through their mouth so they don’t need daily cleaning.
   b. [ ] Sit behind the client and with your non-dominant hand, hold and support the client’s head.
   c. [ ] Gently wipe the client’s mouth with a warm washcloth using your dominant, while ensuring to clean the inner cheeks, tongue, gums, the roof of the mouth, and under the tongue.
   d. [ ] answers b and c only

6. How many times a day should you clean a resident's mouth?
   [ ] 0
   [ ] 1
   [ ] 2
   [ ] 3

7. What is the best method for removing oral bacterial plaque?
   a. toothpaste
   b. using a medium bristle toothbrush
   c. the mechanical action of the toothbrush bristles
   d. all of the above
   e. none of the above

8. It is necessary to wear proper Personal Protective Equipment, including gloves and a mask, when providing mouth care to a resident in order to protect yourself and your client.
   [ ] True
   [ ] False

9. When approaching someone with dementia, it’s important to:
   a. Speak very loudly as the resident is likely hard of hearing
   b. It’s best to provide an individual approach as every resident has different needs
   c. It doesn’t matter as their dementia has no impact on their care
   d. Approach them in a calm manner and validate the reality they are experiencing
   e. b and d
10. Which of the following responses is NOT true about providing mouth care to residents in long term care?
   a. Only residents with teeth require mouth care
   b. Mouth care should be provided twice a day to all residents
   c. Mouth care can be done anywhere the resident is comfortable
   d. The primary goal of mouth care is to disrupt bacteria plaque colonies within the mouth

11. Soft, broken-down areas on tooth surfaces:
   a. Are a normal part of aging
   b. Could be a sign of a cavity
   c. Indicate a strong enamel surface
   d. None of the above
Appendix D - Post-Education Health Training Module Survey

**Post-Oral Health Training Module Survey**

Please complete the following survey by selecting only one answer for each question unless otherwise instructed.

1. Now that you have completed the oral health online education session, how comfortable are you in your ability to provide oral healthcare, such as brushing your client’s teeth? Please rate your comfort level on a scale from 1 to 10, where 1 is not confident and 10 is extremely confident.

   1          2          3          4          5          6          7          8          9          10

2. Has this online education session provided you with new information to assist you in delivering oral healthcare to long-term care residents? Please rate the usefulness of the information provided on a scale from 1 to 10, where 1 is not useful and 10 is very useful.

   1          2          3          4          5          6          7          8          9          10

3. Having completed the online education session, how many times a day should you clean a resident’s mouth?

   - [ ] 0
   - [ ] 1
   - [ ] 2
   - [ ] 3

4. Having completed the online education session, what is the best method for removing oral bacterial plaque?

   a. toothpaste
   b. using a medium bristle toothbrush
   c. the mechanical action of the bristles
   d. all of the above
   e. none of the above

5. What steps can you take to clean the mouth of a frail client with a full set of dentures? The client is nourished through a feeding tube and able to sit in a wheelchair (chair wheels locked)?

   a. [ ] The client doesn’t eat through their mouth so they don’t need daily cleaning.
Appendix D - Post-Education Health Training Module Survey

b. ☐ Sit behind the client and with your non-dominant hand, hold and support the client’s head.

c. ☐ Gently wipe the client’s mouth with a warm washcloth with your dominant hand, while ensuring to clean the inner cheeks, tongue, gums, the roof of the mouth, and under the tongue.

d. ☐ answers b and c only

6. As a healthcare worker, what categories are you using to assess your clients on a daily basis?

a. ☐ lips, tongue, gums and tissues

b. ☐ saliva and oral cleanliness

c. ☐ natural and/or dentures as applicable for the client

d. ☐ dental pain

e. ☐ all the above

f. ☐ answers a, b and c only

7. NURSES ONLY: Now that you have completed the education session, how comfortable are you to start using the Oral Health Assessment Tool (OHAT) as part of your assessment routines. Please rate your level of comfort on a scale from 1 to 10, where 1 is not at all comfortable and 10 is extremely comfortable. Circle the appropriate number.

1          2          3          4          5          6          7          8          9          10

☐ N/A - I am not a nurse.

Please feel free to comment or elaborate.

_______________________________________________________________________________
_______________________________________________________________________________
_______________________________________________________________________________

8. PSWs ONLY: Now that you have completed the education session, how comfortable are you to start referring oral health concerns to a nurse? Please rate your level of comfort on a scale from 1 to 10, where 1 is not at all comfortable and 10 is extremely comfortable.

1          2          3          4          5          6          7          8          9          10
Appendix D - Post-Education Health Training Module Survey

☐ N/A - I am not a PSW

Please feel free to comment or elaborate.

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

9. How confident are you to correctly identify oral health concerns, based on your client’s oral health condition? Please rate your level of confidence on a scale from 1 to 10, where 1 is not at all confident and 10 is extremely confident. Circle the appropriate number.

1 2 3 4 5 6 7 8 9 10

Please feel free to comment or elaborate.

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

10. It is necessary to wear proper Personal Protective Equipment, including gloves and a mask, when providing mouth care to a resident in order to protect yourself and your client.

☐ True

☐ False

11. When approaching someone with dementia, it’s important to:

a. Speak very loudly as the resident is likely hard of hearing
b. It’s best to provide an individual approach as every resident has different needs
c. It doesn’t matter as their dementia has no impact on their care
d. Approach them in a calm manner and validate the reality they are experiencing
e. b and d

12. Which of the following responses is NOT true about providing mouth care to residents in long term care?

a. Only residents with teeth require mouth care
b. Mouth care should be provided twice a day to all residents

c. Mouth care can be done anywhere the resident is comfortable

d. The primary goal of mouth care is to disrupt bacteria plaque colonies within the mouth

13. Soft, broken-down areas on tooth surfaces:

a. Are a normal part of aging

b. Could be a sign of a cavity

c. Indicate a strong enamel surface

d. None of the above

14. Having completed the online education session, what additional training would be beneficial to you in providing oral healthcare to your client? For example, a one-on-one coaching session with a registered dental hygienist to help you brush specific clients’ teeth.

Please feel free to add any comment

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
## Post-Education Session Staff Satisfaction Feedback Survey

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The education content enhanced my knowledge of oral healthcare for long-term care residents.</td>
<td></td>
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<tr>
<td>This online education session has addressed my learning needs.</td>
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<tr>
<td>I am satisfied with the training I received for oral care delivery prior to the online education session.</td>
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<tr>
<td>The material presented in the online session was clear and easy to understand.</td>
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<tr>
<td>I will be able to share the knowledge I gained from this session with others.</td>
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<tr>
<td>The use of case studies helped me gain a better understanding of how to deliver oral care to clients.</td>
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<tr>
<td>I feel prepared to use the new screening tool.</td>
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<tr>
<td>This education session will enhance my oral care delivery methods.</td>
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<tr>
<td>The visual quality of the session was satisfactory.</td>
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<tr>
<td>The audio component of the session was satisfactory.</td>
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<tr>
<td>It was easy for me to complete the online education session.</td>
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<tr>
<td>I would recommend this session to others in my field of work.</td>
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<tr>
<td>Overall, I was satisfied with the online education session.</td>
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</table>
Appendix F - Post-Education Consent Request for Release of Information

**Post-Education Consent Request for Release of Information**

Thank you for completing your online oral health education session. The LTC’s Oral Health research team is collaborating with faculty and students at the University of Toronto (U of T) who are interested in using the data collected from you during this online education session for a research study. The purpose of this research is to better understand if you were satisfied with the online education session and if it was helpful to you.

Records and Confidentiality - If you provide your consent to release your test and survey responses for research purposes, LTC study staff will share de-identified demographic survey responses, education test data, and (if applicable) the satisfaction survey responses with U of T faculty and students. Please be assured that all information collected will be kept confidential by the LTC staff and you will not be personally identified. De-identified study results of the research may be made public as part of academic manuscripts, presentations, posters, etc.

Risks and Benefits - There are no physical risks associated with this study. There is always a potential risk of loss of confidentiality, any time personal information is shared but your personal information will be carefully safeguarded as described above. The study may not benefit you directly but it may help future training initiatives in dental care. Any information obtained from these sessions may lead to the development of marketable treatments, devices, new drugs, or patentable procedures. Any benefit from commercial products or services will remain with the LTC facility, its research partners, and the study sponsor.

Right To Ask Questions and Withdraw - You may revoke your authorization at any time by contacting the LTC study’s research assistant via email removed or phone removed. If you decide that you do not want to participate in this research study, it will not affect any current or future care management, residency, and/or employment status at the LTC facility. In this case, your data will be collected by the LTC staff only for quality improvement purposes. Should you wish to obtain further information about the University of Toronto research study, please contact Debra Pawluk at EMAIL ADDRESS REMOVED.

Thank you very much
Appendix F – Post-Education Consent Request for Release of Information

☐ YES, I consent for my information to be shared as described above.

If they select “YES” the following prompt should appear:

Thank you for completing the online education session. The LT staff will de-identify your information and share it with the U of T study staff for research purposes.

☐ NO, I do not consent for my information to be shared as described above.

If they select “NO” the following prompt should appear:

Thank you for completing the online education session. Your de-identified data will be collected by the LTC staff only for quality improvement.
Appendix G – Oral Health Study Withdrawal Survey

**Oral Health Study Withdrawal Survey**

Anyone can withdraw from the study at any time. You are not obligated to answer any additional questions. However, we would like to understand your reason for leaving the study, and get any final feedback you may have, if you agree to share this information with us.

What is the reason that you are withdrawing from the study?

_____________________________________________

Do you have any additional comments about the study?

_____________________________________________
INTRODUCTORY SCRIPTS FOR ORAL HEALTH STUDY

PSWs and NURSES

Post-Education Session - Online Introduction Note

Thank you very much for completing the Oral Health online education session.

Research staff at the LTC facility and the University of Toronto are very interested in obtaining your feedback about the online training session that you just completed, and about your experience with the roll-out of the new approach to oral care delivery. If you are interested in learning more about this research study, please feel free to contact the study research assistant listed below:

Research Assistant Name Phone: removed (DP)

Email: removed (DP)

Thank you very much for your time and consideration.

In-Person Introduction:

Hello, my name is [name of research assistant], and I am a research assistant at LTC facility. I am here to talk to you about a research study that we are conducting in collaboration with the LTC facility’s Dental team. We are looking for individuals to attend two focus group sessions, and provide us with feedback about a new approach to providing oral care to residents at the LTC facility.

Specifically, we are interested in obtaining your opinions about the online oral health education session that you recently completed, and about your experience with the roll-out of the new approach to oral care delivery. If this is something you are interested in, I can e-mail you a copy of the informed consent form for you to review, and we can schedule to meet, review and sign the consent form at your earliest convenience. Alternatively, if you are not interested at this time, then we will no longer contact you regarding this research study. Any decision you make about participating in this study will not affect your employment status at the LTC facility.

Thank you very much for your time and consideration.
Hello, my name is [name of research assistant], and I am calling from LTC facility. I am calling because [resident’s name], your [relationship], recently completed an oral care planning meeting with you and the LTC’s dental team. I was wondering if you would be interested in participating in a focus group session, to provide us with your feedback about a new approach to providing oral care to residents at the LTC facility.

Our research team would like to learn more about your understanding of oral health for your loved one, and your thoughts about the impact of daily oral care for LTC residents. We are also interested in obtaining your feedback about the oral care that is being provided to your loved one at the LTC facility. If this is something you are interested in, I can e-mail you a copy of the informed consent form for you to review. Alternatively, if you are not interested at this time, I can take your name off our contact list. Any decision you make about participating in this study will not affect your or your loved one’s residency or care at the LTC facility.

Thank you very much for your time and consideration.

Email Script:

Dear [participant name]

My name is [Research Assistant], and I am emailing on behalf of the research team at the LTC facility. I am emailing you because [resident’s name], your [relationship], recently completed an oral care planning meeting with you and the LTC’s dental team. I was wondering if you would be interested in participating in a focus group session, to provide us with your feedback about a new approach to providing oral care to residents at the LTC facility.

Our research team would like to learn more about your understanding of oral health for your loved one, and your thoughts about the impact of daily oral care for LTC residents. We are also interested obtaining your feedback about the oral care that is being provided to your loved one. If you would like more information regarding this research study, please feel free to review the attached consent form. You can also call or e-mail me, and I would be happy to answer any questions you may have about the study. If you are interested in participating, please suggest a few dates and times that are convenient for you, and we can schedule to meet, review and sign the consent form at your earliest convenience. Alternatively, please let me know if you are not interested at this time, and I can take your name off our contact list. Any decision you make
Appendix H – Introductory Scripts for Oral Health Study

about participating in this study will not affect your or your loved one’s residency or care at the
*LTC facility.*

Thank you very much for your time and consideration. Regards, [Research Assistant]
Appendix I – Consent Form for Focus Groups and Interviews – PSWs

Consent Form for Focus Groups and Interviews – Personal Support Workers

INTRODUCTION

You have expressed interest in participating in a research study evaluating a new approach to delivering oral healthcare for older adults living in long-term care (LTC) homes. This model uses a combination of an online education session and the knowledge and expertise of dental hygienists to enhance learning and build a supportive community of practice.

The LTC Facility’s Novel Oral Healthcare Delivery Model

To meet the growing demand to provide appropriate and timely oral healthcare to LTC residents, the LTC facility is launching a new approach to oral healthcare delivery. This new model of oral healthcare aims to:

Improve the oral health of LTC residents

Empower dental hygienists as a profession by maximizing their involvement with LTC residents’ oral healthcare

Increase knowledge and skills in oral health among Personal Support Workers (“PSW’s”) and/or nurses (“RNs/RPNs”) within their scope of practice

Increase family members’ and substitute decision makers’ (“SDM’s”) understanding of the meaning and value of oral health, and their confidence in the oral care being delivered to residents in LTC

This study will evaluate the ability of the model to improve the delivery of oral healthcare to LTC residents. This study is being conducted by LTC staff and U of T staff and students from the Faculty of Dentistry. Your participation is entirely voluntary, and the following information may help you to decide whether you wish to take part. Before you consent to participate in this activity, you may discuss the contents of this form with a friend or family member.

ELIGIBILITY

In order to be eligible to participate in the study you must:

Be a Personal Support Worker (“PSW”) at the LTC facility
Appendix I – Consent Form for Focus Groups and Interviews – PSWs

Be able to communicate in oral English

What is the purpose of the study?

The current project is a research study that involves two participant groups: PSWs, and RNs/RPNs. The aim of this study is to obtain feedback about a new approach to delivering oral healthcare taking place at the LTC facility, which seeks to improve the oral health of residents in long-term care (LTC) homes. This approach includes an online education component for non-dental LTC staff, followed by the implementation of a novel, inter-disciplinary approach to provide oral care for LTC residents. We are asking LTC staff members, such as yourself, to participate in two focus group or interview sessions, and provide us with your thoughts and views about this new approach to oral healthcare.

Focus Group/Interview Session 1 – Education Feedback: You will be asked to provide feedback about the online oral health education session that was completed by all LTC PSWs and nurses. We will ask for your opinions on topics such as the content presented, the quality of the modules, how it will impact your future oral care delivery, etc. Based on your feedback, the research staff can:

- gain a better understanding of how the education module may enhance daily oral care delivery and oral health screening by non-dental LTC staff;
- identify areas of improvement that can be implemented in future versions of the education module.

Focus Group/Interview Session 2 – Oral Healthcare Model Feedback: Approximately 3 months after the first focus group/interview, you will be asked to come back for a second session, and share your thoughts about the roll-out of the new oral healthcare model and your experiences with it after its implementation in the LTC facility.

We hope that you will enjoy participating in the study. The information that we get from this study will help the study team gain an in-depth understanding of the new oral healthcare model for LTC residents, by identifying benefits, barriers, and facilitators of this oral health quality improve initiative.
METHODS AND PROCEDURES

This study will be conducted with the following individuals:

- 25 PSWs

This study includes an initial consent session, to see if you are willing to participate. Following this, you will be invited to participate in two focus groups or interview sessions at the LTC facility. Once participants’ availabilities have been finalized, a research assistant will contact you and schedule your sessions with you.

The time commitment for this study involves the following:

<table>
<thead>
<tr>
<th>What will we ask you to do?</th>
<th>How long will it take?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Initial consent - before the study starts, we will ask you to do the following:</strong></td>
<td></td>
</tr>
<tr>
<td>• Review the consent form with study staff, ask any questions you have, and sign if you wish to participate.</td>
<td>15-20 minutes</td>
</tr>
<tr>
<td>• If you agree to participate, study staff will schedule the focus group or interview session with you, depending on your availability. You will not need to do anything for the study prior to the session.</td>
<td></td>
</tr>
<tr>
<td>• If you consent to participate, you will be asked to complete a short demographic questionnaire.</td>
<td></td>
</tr>
<tr>
<td><strong>Focus Group/Interview Session 1 – Education Feedback</strong></td>
<td></td>
</tr>
<tr>
<td>• We anticipate that this session will take place in late winter.</td>
<td></td>
</tr>
<tr>
<td>• Study staff will conduct either a focus-group or an interview session with you at the LTC facility.</td>
<td></td>
</tr>
<tr>
<td>• You will be asked a few discussion questions about the online education session that you completed.</td>
<td>1 hour</td>
</tr>
<tr>
<td>• This session will be audio and video-recorded.</td>
<td></td>
</tr>
<tr>
<td>• <strong>U of T faculty/student investigators may be present during this session.</strong></td>
<td></td>
</tr>
</tbody>
</table>
Focus Group/Interview Session 2 – Oral Healthcare Model Feedback

- We anticipate that this session will take place in late spring.
- Study staff will conduct either a focus-group or an interview session with you at the LTC facility.
- You may be asked to complete a paper-based feedback survey about the oral healthcare model, followed by a few discussion questions.
- This session will be audio and video-recorded.

1 hour

The study staff will also be recording your attendance at the focus group/interview sessions for administrative purposes. The LTC study staff may send you periodic written communications with study information by e-mail or mail. Once the final analysis is completed, you will be provided with a debrief form summarizing some of the key study findings.

ADDITIONAL SAFETY AND SECURITY INFORMATION

By signing this consent form, you will be granting permission for the LTC study staff to conduct focus group/interview sessions with you and create audio/visual recordings for research purposes. You will also be authorizing U of T faculty and student investigators to attend and observe the first focus group/interview session, where your personal information (e.g., your name) may be disclosed, and have access your de-identified demographic survey data.

You are under no obligation to participate in any of the research activities mentioned in this consent form (e.g., video/audio recording, or focus groups) and your participation in this study is voluntary. During the focus group/interview sessions, you may be asked to share your opinions, beliefs, views, thoughts, or experiences. You have the right to refuse to answer any questions that you are uncomfortable with. Additionally, you reserve the right to share as much or as little information as you want during any/all sessions. We ask that you do not disclose any private, confidential, or identifying information about your clients during the sessions.
RECORDS AND CONFIDENTIALITY

As part of this research study, the LTC facility and U of T research staff will be collecting your contact (e.g., name, phone number, e-mail) and demographic (e.g., age, gender) information, as well as field notes and audio and video recordings. Your data will be coded with a unique study ID number for study administration purposes. Identifying information about you will be stored confidentially in locked file cabinets and in computer files protected by a password at the LTC facility and U of T. U of T study staff may attend the first focus group or interview session and, therefore, will have access to identifying information about you (e.g., your name). U of T study staff will be asked to sign a confidentiality and security agreement asking them to abide by the LTC facility’s terms and conditions regarding confidential storage of identifying information. The only people who will know that you are a study subject are the members of the LTC and U of T study teams.

No identifying trial data about you will be disclosed beyond the LTC facility and U of T study staff without your written permission, except: 1) if necessary to protect your rights or welfare (for example, if you are injured and need emergency care); or 2) if required by law. Data may be used (without identifying you) for any research and commercial purposes; for example, de-identified data could be used in (but not limited to) reports, journals, presentations, websites, marketing materials, Master’s thesis report, and social media.

As part of continuing review of the research, your records may be accessed on behalf of the Research Ethics Board. A person from the LTC research ethics team may contact you (if your contact information is available) to ask you questions about the research study and your consent to participate. The person accessing your file or contacting you must maintain your confidentiality to the extent permitted by law.

Potential Risks of the study

There are no physical risks associated with participation in this study. There is always a potential risk of loss of confidentiality, any time that names or other personal information is shared. Personal information will be carefully safeguarded as described in the “Records and Confidentiality” section.
Appendix I – Consent Form for Focus Groups and Interviews – PSWs

COMPENSATION

An honorarium of $30 ($15/session) will be offered to participants of this study, in recognition of your time and effort. Light refreshments will be provided at both interview sessions.

Potential benefits from the study

There is no direct benefit to you from taking part in this study. However, the information obtained from this study will provide an in-depth understanding of the new oral healthcare model, including feedback about the online education session, and inform study staff about the benefits and challenges of this new model, which in turn can improve the oral health of LTC residents.

Any information obtained from these sessions may lead to the development of marketable treatments, devices, new drugs, or patentable procedures. Any benefit from commercial products or services will remain with the LTC facility, its research partners, and the study sponsor.

RIGHT TO ASK QUESTIONS AND TO WITHDRAW FROM THE STUDY

Your participation is voluntary, and you are free to withdraw and to discontinue participation at any time before or during both data collection sessions. If you withdraw, we may ask you a few questions about your withdrawal, if you agree to discuss it with us. Any information collected prior to your withdrawal will be coded with a unique ID number and may be used for research and/or commercial purposes. However, no new information will be collected or included in the study analysis and reporting.

If you decide that you do not want to participate in this research study, it will not affect any current or future care management, residency, and/or employment status at the LTC facility. Your participation may be withdrawn if you fail to follow study procedures.

RIGHT TO ASK QUESTIONS

If you have any questions concerning this study or if you experience a research-related problem or injury, contact:

Removed
Appendix I – Consent Form for Focus Groups and Interviews – PSWs

If you wish to contact someone not connected with the project about your rights as a research participant, feel free to call:

Removed

If you have read this informed consent form and understand what is involved in this study, and would like to participate, please sign the sheet entitled “AGREEMENT TO PARTICIPATE – PSW”.

Agreement to PARTICIPATE – PSW

CONSENT - My signature indicates that:

I have read the information provided above.

I have read and understood the research study procedures, purpose, risks and benefits.

I understand that the material obtained may lead to the development of marketable treatments, devices, new drugs or patentable procedures. I understand that I am not entitled to these benefits.

I understand that the U of T study staff and/or students, will be present at the first focus group or interview session, and will have access to my demographic information and research data, which will be used for a graduate thesis project.

I understand that I can revoke this authorization either before or during the study session(s).

I have been given the opportunity to ask questions and all of my questions have been answered to my satisfaction.

I have been given a signed copy of this form.

SIGNATURE OF PARTICIPANT

I understand the information described in this document, and I hereby consent to participate in this research study, and be audio or video taped for data collection purposes.
Appendix I – Consent Form for Focus Groups and Interviews – PSWs

Name of Participant (Print)  Signature  Date Signed

SIGNATURE OF PERSON OBTAINING CONSENT

I have personally explained the research study to the participant, and answered all of his/her questions. I believe that s/he understands the information described in this document and freely consents to participate.

Name of Person (Print)  Signature  Date Signed
Appendix J – Oral Health Focus Group Demographics Questionnaire PSWs and Nurses

Oral Health Focus Group Demographics Questionnaire PSWs and Nurses

1) Age: _______________ Sex: ○ Male ○ Female

2) Years of Education, starting with grade 1: _______________

3) Years of work experience do you have in the health care field? _______________

4) Primary Language Spoken: _______________ Number of Languages Spoken: ___

5) Profession Type?
   ○ Personal Support Worker (PSW) ○ Registered Practice Nurse (RPN)
   ○ Registered Nurse (RN) ○ Other. Please specify

6) What shift do you typically work?
   ○ Day Shift ○ Evening shift ○ Night shift ○ I work all shifts

7) What is your employment status? (please check one):
   ○ Employed Full-time ○ On-call
   ○ Employed Part-time ○ Other. Please specify: _______________

8) What is the functional capacity of your typical client?
   ○ Requires minimal assistance ○ Requires moderate assistance
   ○ Requires full assistance

9) How often do you provide oral care to your clients?
   ○ ______ per week ○ _______ per month ○ N/A

10) How often do you screen your clients for oral health issues?
    ○ ______ per week ○ _______ per month ○ N/A
Appendix K - Oral Hygiene – Education Feedback (Staff Focus Group 1)

**Oral Hygiene – Education Feedback (Staff Focus Group 1)**

Research Assistant:

Hello and welcome to our session. Thank you for taking the time to join us to talk about your experience with the Oral Hygiene online education session. My name is [NAME], and I’m with the *removed at the LTC facility*. I am working with members of the Oral Hygiene team to get your thoughts and feedback about your experience with the online education session. During this session, I will ask you some questions and take notes as you respond to them. To make sure nothing is missed, I will also be audio and video recording this interview. I would appreciate it if you could please answer all of the questions as best as you can, one at a time, providing as much detail as possible. There are no wrong answers so please feel free to share your point of view even if it differs from what others have said. Please be assured that all information collected will be kept confidential.

This guide is a collection of questions and probes that may be asked at various time-points during the focus group. Additional questions may be asked if new issues or areas of interest arise during the session.

What was your overall experience with the online training session?

Probe: What material did you like in the education session?

Probe: What material did you dislike in the education session?

Probe: Was the length of the education session sufficient?

Do you feel that the education session enhanced your knowledge on how to provide oral care to residents? Please explain why or why not.

Probe: What are some new things that you learned from this education session?

Probe: Do you feel that this education session is useful for [PSWs/nurses] in LTC?

Probe: Did this education session address your learning needs?
Appendix K - Oral Hygiene – Education Feedback (Staff Focus Group 1)

Do you think that this online education session will have an impact on your care delivery moving forward? Please explain your answer.

Probe: Is there anything that you will do differently, as a result of this education session?

Probe: Is there anything that you will continue to do for your clients, as a result of this education session?

Probe: Do you feel more confident in your oral care delivery, as a result of this education session?

Probe: Do you feel that the education session addressed often experienced by healthcare providers in providing oral care to LTC residents with cognitive or behavioural issues?

In your opinion, do you think that PSWs and nurses should regularly screen residents for oral health issues? Please explain why or why not.

Probe: Do you think that it is beneficial to include PSWs, nurses, and dental hygienists in the resident’s oral care team? Please explain why or why not. Probe: Do you think it is feasible to include this new method of oral care delivery in your daily practice? Please explain.

Do you have any other comments or suggestions about the online education session?

Probe: Are there any new topics that you would like us to address in future versions of the online education session?

Probe: Are there ways that we can improve the education session?
Appendix L - NVivo Qualitative Analysis Screenshot

NVivo Qualitative Analysis Screenshot

Reference 1: 3.23% coverage

Interviewer 1: Now you had mentioned that it was 99%, what could have made it a 100%?
P109: Well, sometimes we need help too, in actual, we don’t know not only by ourselves but we need help as I said already too [laugh] I said I need this one, and really.
Interviewer 1: Okay
P109: She came down and nothing happen yet, [laughter] that sometimes we need an assistance. As you as a professional with this kind of job, sometimes when we said, like, in the lecture or from the, and even when you’re read it, you cannot get it until you apply it personally in actual situation.
P110: Like a demonstration –
Interviewer 1: Okay.
P109: Yeah
P110: - we need a demonstration, I think, right? For that one.
P109: Yeah.
Interviewer 1: Okay
P109: But I really appreciate because when we ask it, they give us the technique how to be able to come, the need that will come to us and we have it.
Interviewer 1: Okay.
P109: So I really appreciate that one too, thank you. The action is always coming down, I think because of my voice.
[Collective laughter]

Reference 2: 1.02% coverage

P109: But as I said, we have only like a patient that we need to deal with. But the, the help that we needed make an action right away that way if she will come and continue and giving us demonstrations one of this day again and maybe we will get it 100% already.
Appendix M – Copyright Permission

RE: Request Permission to Use StatCan Charts

From: Debra Pawluk [mailto:debra.pawluk@mail.utoronto.ca]
Sent: October-10-18 12:20 PM
To: Larochelle-Côté, Sébastien (STATCAN) <sebastien.larochelle-cote@canada.ca>

Subject: FW: Request Permission to Use StatCan Charts

Hello Sir,

This email is a follow up to my voice message left for you today at noon. My name is Debra Pawluk and I am a dentist currently pursuing a Master of Science degree in Dental Public Health at the University of Toronto. My thesis is focused on the geriatric population that reside in a long-term care facility. As such I would like to use Charts 1 and 2 as per (info attached to this email):

Turcotte, Marin and Carole Sawaya. 2015. “Senior Care: Differences by type of housing”. Insights on Canadian Society. February, Statistics Canada Catalogue

Please advise how I can request permission to use the two charts, without modification, in my thesis.

Kind regards,

Debra Pawluk
Copyright Acknowledgements