



LAHDEN AMMATTIKORKEAKOULU
Lahti University of Applied Sciences

ORAL HEALTH CARE OF THE ELDERLY

A Literature Review Concerning Interventions and Barriers

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Angela Vehkalampi

Li Haimilahti

Sasan Amanpor

Lahti University of Applied Sciences
Degree Programme in Nursing

VEHKALAMPI, ANGELA; HAIMILAHTI, LI; AMANPOR, SASAN

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ABSTRACT

The rapidly growing elderly population worldwide is a medical success that is not without various complications. The growing burden of oral health diseases among the elderly is a global challenge for the patient and those caring for them. Greater attention is needed toward the promotion of oral health care of the elderly. The aim of this thesis is the promotion of oral health of the elderly. The goal of the review is to find the answer of research questions to understand barriers in oral health of elderly so as to implement the nursing intervention.

Research questions were developed as to assist the authors in meeting their objective during the research process. The objective of the study is to provide a review which will increase education pertaining to the nursing interventions necessary to promote elderly oral health. The study was done as a systematic literature review using the method of content analysis to review selected articles. Nine peer reviewed and scientific articles were scrutinized to obtain results for the research study.

Results strongly indicated lack of nursing interventions needed against various barriers to oral health of the elderly. Barrier such as insignificant role, lack of multiprofessional collaboration, lack of access to dental services, lack of dental supplies, the negative impacts of polymedicine and chronic diseases upon the elderly, negative attitudes and perceptions of the elderly, lack of education and skills within the nursing profession and lack of protocols for the nursing professionals. Interventions such as: addressing gaps in education and training, integration of oral health into care plans, oral health assessment and observation by nurses, accessible dental appliances and an increased multiprofessional collaboration are means to promote the oral health of the elderly.

Key words: Oral hygiene, Promotion, Older People, Interventions, Elderly and Barriers

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TIIVISTELMÄ

Nopeasti kasvavan maailmanlaajuisen vanhusväestön hoitoon on paneuduttu, mutta siinä on vielä paljon erilaisia ongelmia erityisesti suun hoidossa. Lisääntyvä vanhusväestön suusairauksien määrä onkin maailmanlaajuinen haaste sekä vanhukselle itselleen että hoitohenkilökunnalle. Tämän opinnäytetyön tarkoitus on vanhusväestön suun terveyden ja hoidon edistäminen. Tavoitteena on ollut selvittää vanhusväestön suun terveydenhuoltoon liittyviä esteitä, jotta hoitohenkilöstö voisi entistä paremmin toteuttaa hoitotyötä vanhusväestön suun hoidossa.

Kyseessä on tieteellinen kirjallisuuskatsaus, jonka puitteissa on kerätty vanhusväestön suun terveyden edistämiseen tarvittavaa tietoa. Se on hyödyllistä esimerkiksi hoitotyön interventioihin liittyvissä koulutuksissa. Kirjallisuuskatsauksessa olevaa yhdeksää tieteellistä artikkelia on analysoitu sisällönanalyysin keinoin.

Tarkastelu osoittaa, että vanhusväestön suun hoidossa on paljon puutteita ja ongelmia. Hyvän suunhoidon esteitä ovat muun muassa sairaanhoitajan merkityksen rooli suun hoidossa, moniammatillisen yhteistyön puute, hammaslääkäripalveluiden ja hammastarvikkeiden puute, suun terveyteen vaikuttava liiallinen lääkitys, kroonisten sairauksien negatiivinen vaikutus suun terveyteen, kielteiset asenteet ja käsitykset vanhuksista, koulutuksen ja taitojen sekä hyvien käytänteiden puute sairaanhoitajan työssä. Tarvetta on siis koulutuksiin, jotka edistäisivät vanhusväestön suun terveyden hoitoa. Keinoja edistää vanhusväestön suun terveydenhuolto ovat esimerkiksi puutteiden käsittely koulutuksissa ja harjoitteluissa, suun terveyden yhdistäminen hoitosuunnitelmien kanssa, sairaanhoitajien tekemä suun terveyden arviointi ja havainnointi. Lisäksi suunhoitoon tarvittavat instrumentit ja laaja moniammatillinen yhteistyö voi nähdä hyvinä keinoina edistää vanhusväestön suun terveyttä.

Avainsanat: suuhygienia, edistäminen, ikääntyneet, interventiot, vanukset, esteitä

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1 INTRODUCTION

The population of elderly people is growing at a more rapid pace than any other time in history worldwide. It is predicted that people aged 60 and above will account for half the population by the year 2050. (Petersen, Kandelman, Arpin, and Ogawa 2010, 254.) People aged 80 and above may attribute a longer life expectancy to reduced fertility and an increase in life expectancy (WHO 2014a). While the aging population increase is a success for the medical environment it also brings forth challenges for health authorities. An increased burden of chronic diseases is confronting the health authorities which include a growing burden of oral disease among older people. (Peterson et al 2010, 257.)

According to studies it has been found that the oral health of the elderly is of poor quality. Poor oral health may be characterized by edentulism, dental caries, increased rates of periodontal, xerostomia and oral pre-cancer. (NIH 2014a.) Poor oral health has been seen to effect on the quality of life and wellbeing among the elderly in their daily life experiences (Kotzer, Lawrence, Clovis and Matthews 2012, 2). Areas which may be affected by poor oral health and dental pain include a decline in the ability to eat, weight loss, speech impediments, hydration concerns, decrease in opinion about appearance and decline in attending social interactions (Chalmers and Pearson 2005, 411).

The increase in poor oral health may be due to a multitude of factors. The perception that oral care is more disagreeable than other nursing cares, that poor oral health and elderly are a normal aging process, inadequate health care programs and low motivation among the nursing staff are seen to be factors that affect oral health care provided. (Nitschke, Majdani, Sobotta, Reiber and Hopfenmuller 2009, 4-7.) Another factor that contributes to poor oral health of the elderly is the lack of importance caregivers have towards oral cares (Albrecht, Kupfer, Reissmann, Haastert, Mühlhauser and Köpke 2013, 1-2).

The aim of this study is the promotion of oral health for the elderly. The objective is to provide a study which will educate on the impact of inadequate oral health among the elderly as to promote oral health using implementations of nursing interventions to improve their quality of life.

Motivation for a study pertaining to the oral health of the elderly was prompted by first hand experiences seen by the three authors of this study. While participating in clinical training in various locations around Finland, the authors became aware of the significant need for more oral care among the elderly. Oral care is a basic need for all humans yet there is no set guidelines pertaining to the minimal cares allowed by the government. Therefore, the quality of oral care among the elderly greatly varies from one location to another. The authors of this study felt motivated to try educate nurses all around Finland about the significant, and often forgotten, role nurses play in the oral health the elderly.

2 ORAL HEALTH OF THE ELDERLY IN NURSING

This chapter will include the concepts associated with oral health and provide descriptions of a common oral diseases affecting the elderly population. Oral health is an important and often overlooked component of an older person's general health and well-being. Oral health can affect general health in very direct ways. This section will give the reader an overview of nursing related topics associated with the dental field.

2.1 Oral health care in nursing

Oral refers to the mouth (natural teeth, gingival and supporting tissues, hard and soft palate, mucosal lining of the mouth and throat, tongue, salivary glands, chewing muscles, upper and lower jaw, lips). The oral cavity includes cheeks, hard and soft palate. Oral hygiene includes the prevention of plaque-related disease, the destruction of plaque through the mechanical action of tooth brushing and flossing or use of other oral hygiene aides. Oral health is defined as state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay and tooth loss, and other diseases and disorders that affect the oral cavity. (WHO, 2014b.) A strong association between oral health and general health exists. An individual's oral health is a significant indicator of their general health and quality of life. (U.S. Department of Health and Human Services, 2000.)

It is scientifically proven that there is a connection between oral and general health. It is not possible to be healthy with poor oral health. Certain risk factors are seen to cause an interaction between multiple oral diseases and noncontagious chronic diseases. The prevalence of oral signs seen in many general diseases result in a greater risk of oral diseases that may lead to complications in general health. (Petersen 2003, 3.)

Oral health care is part of holistic nursing which is based on the late work of Florence Nightingale. Holistic nursing involves incorporating all aspects of nursing that lead to an end goal of healing the whole person not just the diseases. Holistic nursing recognizes the need to incorporate the mind, body, environment, spirit and emotions while caring for a patient. (Klebanoff and Hess 2013, 1.)

Promotion of oral health through holistic nursing involves nurses improving patient's knowledge pertaining to oral health, encouraging patients to take a self-care approach to their health and respecting the decisions of the patient. Nurses and patients work in mutual collaboration using holistic care approaches. Great emphasis is placed nurses acting as wellness role models as to enable the patient to assume the responsibility for their own health. (Clark 2004, 2.)

2.2 Optimal oral health of the elderly

Optimal oral health is the promotion and execution of the most effective plan leading to an improvement of general and oral health. International collaboration is established to determine optimal oral health of the elderly and the course of action needed for future improvements. (Alexander 2009, 172; FDI 2015.) Goals of optimal oral health are facilitated through the development of well supported policies with multiprofessional education. This education is aimed at the prevention of oral diseases, the improvement of general and oral health and delivery of the best possible oral health care. (Glick and Meyer 2014, 519.)

Promotion of optimal oral health of the elderly is the responsibility of all professionals caring for the patient. Working as a unit rather than an individual towards a unified goal of oral health promotion ensures the maximum benefits for the elderly patient. (Baseer, Rahman, Asa'ad, Amoudi and Bluwi 2014, 100; Petersen et al., 2010, 257.) Optimal oral health of the elderly is possible through proper eating habits, efficient oral cares, access to dental services, sufficient self-care knowledge and professional support (Al-Sinaidi 2012, 2).

2.3 Oral health related nursing interventions

Oral hygiene is an essential aspect of nursing care and is methodically planned using nursing interventions. Oral health related nursing interventions are the treatments and actions performed to assist the elderly client attain set goals. Each nursing intervention is carefully planned using knowledge, critical thinking and skills to determine an individualized set of oral health related interventions for the elderly. (O'Connor 2012; Grinspun 2008, 7-9.)

Interventions dealing with the promotion of oral health of the elderly is a detailed process which requires multiple processes. The intervention includes the patient, nurse and other institutional collaboration to ensure maximum oral health potential is attempted. (Grinspun 2008, 50-54; O'Connor 2012.) Highly detailed guidelines of how a nurse can perform an oral hygiene plan of care can be located in the reference list under O'Connor and Grinspun.

2.4 Description of oral diseases and conditions

Edentulism, also known as tooth loss, is a common disease where one or more of the teeth is missing and affects the elderly population worldwide. There is a common acceptance that the socio-economic status of the individual influences the prevalence of edentulism. Other factors that have been seen to increase edentulism are: smoking, age, gender, diabetes, alcohol use and the individual's perception of oral health's importance. (Zeng, Luo, Quan, Yi & Leng 2013, 5.) The loss of teeth greatly impacts an individual's ability to chew. This in turn affects the nutritional intake, choice of foods selected, and diet. If eating becomes a painful process individuals tend to decrease eating intervals which leads to malnutrition. This loss of nutrients prompts a weakening of an elderly person's immune system and could result in development of illnesses. (Saman, Andrine, Oscar & Lutfiyya 2014, 17.)

Xerostomia is most commonly referred to as dry mouth. This condition is one that is prone to go unnoticed among the elderly population. The elders may not perceive their levels of saliva to lacking and fail to mention it to dental personnel. A thorough inspection of the client's mouth will assist the nursing staff in the

detection of xerostomia. (Coker, Ploeg, Kaasalainen & Fisher 2013, 2364-2654.) Without the presence of saliva to cleanse oral surfaces the risk of oral diseases increase with the buildup of bacteria and food particles that remain in the oral cavity. Certain types of medicine can contribute to xerostomia. (U.S. Department of Health and Human Services 2000.)

Oral infections are commonly seen in the medical profession and may consist of fungal, bacterial or viral etiology. Manifestations of oral infections lesions are seen on the tongue, palate, lips, inside of the cheeks and floor of the mouth. Lesion is a general term referring to sores or damaged areas of tissue. (Finkelstein 2013.)

Oral herpes virus infections (OHVIs) is a common viral disorder of the mucous. The mucous is the soft tissue that lines the oral surface of the lips, cheeks, floor of mouth. Herpes infections of the mouth may affect all ages and cause significant discomfort and dysfunction. Oral herpes, HSV-1, is typically called a cold sore or a fever blister. Oral herpes is transmitted or passed along by kissing, or use of contaminated utensils. The virus remains in the individual and may present itself if conditions such as fever, viral infection, fatigue and bright sunlight exist. (Knight & Leeuw 2014.)

Fungal infections related to the elderly is commonly associated with an affliction called candidiasis. This may develop from ill-fitting and poorly brushed dentures causing sores in the mouth. The normal levels of candida fungus in the mouth become too high yeast accumulates in the sores causing oral pain and redness. Good oral hygiene, brushing the dentures and removing dentures overnight can reduce the prevalence of denture stomatitis also known as candidiasis. (U.S. Department of Health and Human Services 2000.)

Bacterial infections of the mouth can cause complications such as dental caries also known as a cavity. Dental caries is a type of bacterial infection which originates from the Latin word 'caries' which means rotten. Here an overabundance of flora in the oral cavities creates a foci of infection which can effect of vital systems. (Najjar 2014.) This is a major problem for the elderly worldwide. High rates of dental caries is often connected to the frequency of

eating, types of food eaten, frequency of tooth brushing, smoking, consumption of sugars and levels of saliva present. (U.S. Department of Health and Human Services 2000.)

Periodontal disease, another manifestation of bacterial infection, continues to be problematic worldwide although the cure is available with professional and individual cooperation. Periodontal disease's prevalence is directly linked to poor oral hygiene practices which leads to bacteria spreading across the tooth's surface. Biofilm accumulates in the oral cavity causing periodontitis, the gums pull away from the teeth and form pockets of infection. (NIH 2014b.) Untreated, the bones, gums, and tissue that support the teeth are destroyed. Eventually, the teeth become loose and have to be extracted. Preventative measures against periodontal disease include but are not limited to: frequent teeth brushing, regular flossing, routine dental visits and overall good oral hygiene. (U.S. Department of Health and Human Services 2000.)

3 AIM OF STUDY AND RESEARCH QUESTIONS

The purpose of this thesis is the promotion of oral health for the elderly. This study will attempt to add current information to enhance the knowledge of nurses who are responsible for the oral health of the elderly.

The goal is to provide a study which will increase education pertaining to the nursing interventions of elderly oral health. These nursing interventions aim to promote oral health of the elderly using implementations of nursing interventions to improve their quality of life. This study will also educate about the impact of inadequate oral health among the elderly and attempt to provide answers to research questions using thorough examination of previously written scholarly articles from factual literature. The research questions are:

1. What are the barriers for optimal oral health among the elderly?
2. What are the nursing interventions to promote oral health of the elderly?

4 METHODOLOGY AS A LITERATURE REVIEW

The authors use a systematic literature review approach to analyze scientific literature. This is done to further understand scientific knowledge accumulated pertaining the oral health of the elderly.

4.1 Literature review as a methodology

A systematic literature review aims to answer to the well-focused research question using a rigorous and well-defined approach. This approach intends to provide a more comprehensive understanding of previous knowledge and research. (Cronin, Ryan and Coughlan 2008, 39; Garrard 2014, 4.) Systematic literature reviews assist to rigorously analyze past research in order to base conclusions from multiple studies (Garrard 2014, 4).

A summary will be done to summarize, critically analyze, evaluate and clarify information presented by other authors (Wakefield 2014, 50). The end product will summarize all the articles in the attempt to illustrate why the research question is of great importance and to extend other author's works (Cronin 2014, 21). The summary shall end with a precise conclusion of results found from the current knowledge will provide recommendations or implications for practice (Cronin et al 2008, 43).

A systematic literature review is defined as a technique that examines the knowledge base and academic views while explaining concepts in the research field through reading, collecting, deductive analyzing, sorting, and summarizing data (Edwards 2007, 307). Knowledge from past studies assist the authors in establishing a theoretical base of the study, to establish the idea and to assist in developing the research methodology (Carter & Little 2007, 1314). Literature reviews include the most current information about a topic to bring the reader up-to-date on an issue (Cronin et al 2008, 38).

4.2 Data search and collection process in this study

Data was collected by the authors using an electronic source called Nelli Portal within the Lahti campus and from various off campus locations using remote access to Nelli. The databases used to collect the data for the study included: academic search elite EBSCO, PubMed and Elsevier: Science Direct. Articles were retrieved using key words extracted from the aim and using words typically associated to the study topic. Search terms used were Oral hygiene, Oral Care, Elderly, Older people, Intervention, Barriers and Promotion.

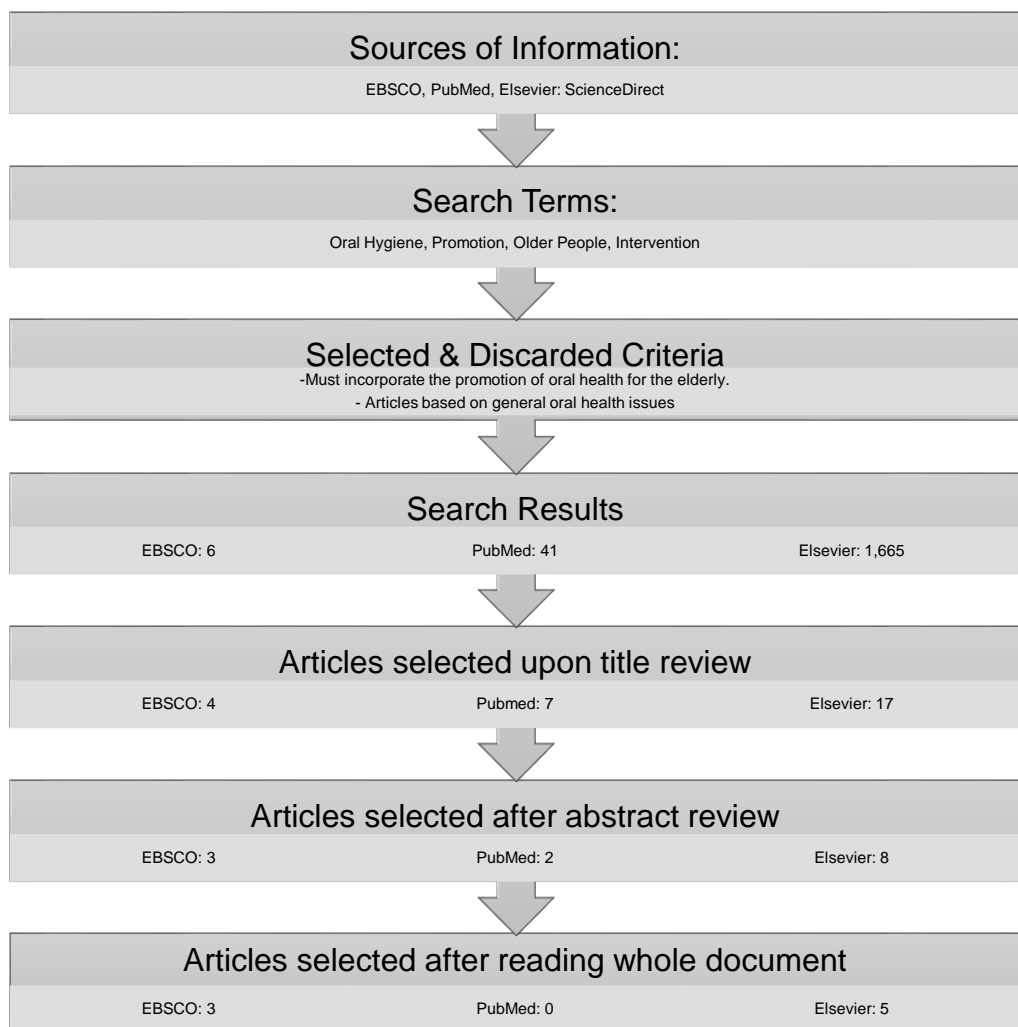


Figure 1: demonstrating data search process, databases, keywords, number of articles

The initial search was done using main key words such as Oral care ‘AND’ Elderly ‘AND’ Promotion ‘AND’ Intervention. The second search provided numerous key articles and was done using words related to the study such as Oral hygiene ‘AND’ Older people ‘AND’ Barriers.

Among the professional field it is agreed that thesis writing is to be done using set guidelines. This authors of this study followed the guidelines seen in the ‘Thesis Guidelines Book’ from the University of Applied Sciences in Lahti. All the articles included in the study were scientifically written, peer reviewed, included full text, written in English, were accessible free of charge and of relevance to the study. Articles accepted for review were those written between the years of 2005-2014 and had interventions that were aimed at the oral health of the elderly.

Precise inclusion and exclusion criteria was implemented to limit the number of articles to be analyzed and allowed for only the most appropriate to be included (Wakefield 2014, 52). Having well defined selection and exclusion criteria can promote more precise generation of articles to be included in the study (Cronin et al 2008, 39). Articles excluded from the study were those which did not meet the above criteria. Table 2 demonstrates the inclusion and exclusion criteria pertaining the articles selected for the literature review.

Table 2: Inclusion and Exclusion Criteria

INCLUDED
<ul style="list-style-type: none"> • Articles published between the years 2005-2014 • Articles with interventions aimed at the oral health of the elderly • Articles available as free text • Articles published in English

EXCLUDED

- Articles published before 2004
- Articles written in any other language than English
- Articles concerning the oral health of infants, children or adolescents
- Studies that focused on specific diagnoses or conditions

The authors sought saturation of data to ensure sufficient data had been collected. Data is to be carefully contemplated regarding its appropriateness and adequacy before incorporated into the study. Studies collected and analyzed may be written by primary and secondary sources. All resources are to be of academic repute and should be the most current information available about the chosen topic. (O'Reilly & Parker 2012, 191-193.)

The authors selected both primary and secondary source materials to include in the literature review. Primary materials are those sources in which the original article is written by the scientist who performed the study themselves. Secondary source materials used in this article are summarizations of an original work done by individuals other than the original researcher. (Garrard 2014, 30.)

The authors chose nine articles to include in the study which were from an international background. Studies chosen were from the United States, Canada, Netherlands, India, Sweden and from various locations within the UK. Therefore, recommendations from international standards may be used from these studies. Publications of the articles ranged from the year 2005 to the year 2013. A summarized table of the articles, authors, publication years, titles, the aims, results point of interest are presented in the table below.

Table 3: Article information

<i>Authors</i>	<i>Title</i>	<i>Aim of research</i>	<i>Results</i>	<i>Interest Point</i>
<i>Coleman P. 2005 Article 1</i>	<i>Opportunities for nursing-dental collaboration: Addressing oral health needs among the elderly</i>	<i>Highlight need for increased awareness of oral health of the elderly. Give recommendations to promote elderly oral health.</i>	<i>Multi-professional collaboration can promote higher standards of oral care.</i>	<i>Collaboration of professionals to promote oral health and recommendations for positive changes</i>
<i>Coker, E., et al 2013 Article 2</i>	<i>A concept analysis of oral hygiene care in dependent older adults</i>	<i>To report a concept analysis of oral hygiene care.</i>	<i>Oral hygiene: a multitude of factors which can be tested, analyzed, changed and implemented into practice.</i>	<i>Consequences of poor oral cares, suggestions for competent oral cares and recommendations for promotion of oral health</i>

<p><i>Forsell M., et al 2010</i></p> <p><i>Article 3</i></p>	<p><i>An evidence-based oral hygiene education program for nursing staff.</i></p>	<p><i>Increase education & prevalence of oral health care among nurses.</i></p>	<p><i>Better motivation to tend to oral care of elderly may come with more education.</i></p>	<p><i>Clear methods to promote oral health education and it's benefits</i></p>
<p><i>Heath H., et al 2011.</i></p> <p><i>Article 4.</i></p>	<p><i>Promoting older people's oral health</i></p>	<p><i>Guideline for those providing oral care.</i></p>	<p><i>Preventative actions assist to promote health & improve the quality of life.</i></p>	<p><i>Concise recommendations to promote elderly oral health.</i></p>
<p><i>Hollman C., et al. 2005</i></p> <p><i>Article 5</i></p>	<p><i>Promoting oral hygiene</i></p>	<p><i>Teaching aide for all providing oral care.</i></p>	<p><i>Keeping skills and training current is essential.</i></p>	<p><i>Stresses the importance and need for constant learning</i></p>

<p><i>Jablonski R., et al 2009.</i></p> <p><i>Article 6</i></p>	<p><i>Mouth care on nursing homes: knowledge, beliefs, and practices of nursing assistants</i></p>	<p><i>Examine the knowledge, beliefs and practices of those providing oral cares to enhance services provided</i></p>	<p><i>Nurses: vital to support learning regarding oral cares, resistive behavior response and providing adequate supplies.</i></p>	<p><i>Emphasis on the significance and duties of a nurse as a role leader.</i></p>
<p><i>Putten G., et al 2013.</i></p> <p><i>Article 7</i></p>	<p><i>The importance of oral health in (frail) elderly people</i></p>	<p><i>Educate on the consequences of poor oral health and its impact on general health with the elderly.</i></p>	<p><i>Changes are needed to inhibit oral health diseases from becoming a giant problem for the elderly</i></p>	<p><i>Clear information on complications of poor oral health</i></p>

<i>Talwar M., et al 2012. Article 8</i>	<i>Oral health considerations for the elderly-problems and management strategies</i>	<i>How to consider needs of the elderly to maintain optimal oral health status.</i>	<i>Management strategies dealing with elderly oral problems is key to improving oral related problems.</i>	<i>Precise consequences of poor oral health and multiple suggestions for positive change.</i>
<i>Yoon, M., et al 2011 Article 9</i>	<i>An exploratory investigation using appreciative inquiry to promote nursing oral care</i>	<i>Determine impact of selected tool to improve knowledge and improve oral health services.</i>	<i>A variety of tools should be used to bridge the knowledge-to-action gap and promote positive changes</i>	<i>Useful and logical strategies to improve oral care of the elderly.</i>

4.3 Data Analysis

In this study the authors used deductive content analysis to critically analyze all the data. Deductive content analysis is described as a multi strategic process used to systematically code and categorize vast amounts of information from multiple texts. Information is categorized according to trends, patterns, words used, frequency of used words and the relationships between the words. The purpose of a deductive content analysis is to examine and report the characteristics of a documents content. (Vaismoradi, Turunen & Bondas 2013, 399.)

The process of analyzing all the data was done in a step-by-step process. Once the relevant articles were selected the authors numbered the articles 1-9. All the

articles were read repeatedly in order to gain a thorough understanding of the information within. After all articles were read the authors began to find main themes from each article which would assist to answer the research questions.

4.4 Data summarizing

At the end of each article the authors wrote a brief summarization to assist in future reference needs. Next, the articles were read individually and assessed for concrete information pertaining to the research questions. Markers of differing colors were used to highlight information for question 1 and question 2. The authors organized data into themes, categories and subcategories.

To develop major themes the authors used the direct quotes from the research articles which assist to answer the research questions. Similar findings were grouped together and analyzed critically to for emerging themes. A few examples of how the direct quotes can be seen in table 4 below. The full table showing the development of each individual title can be found in Appendix I and II.

Table 4: Examples of the pathway for construction of themes (First research question)

<i>Quotes</i>	<i>Category</i>	<i>Themes</i>
''The importance of oral health is often misunderstood and neglected by nurses'' (Putten et al 2009, 342)	Significance of duties and education priorities of the nurses	Insignificant role
''Lack of interaction between dentistry and nursing isolates multiprofessional collaboration'' (Coleman 2005, 36)	Level of cooperation between professionals and its effect on elderly oral health	Lack of multiprofessional collaboration

5 LITERATURE REVIEW FINDINGS: BARRIERS AND INTERVENTIONS

In this section the authors will illustrate the results of the research study wherein the primary goal is to explore the ways oral health of the elderly may be improved. Presentation of the results will be done using major themes that emerged from the research questions. The two major themes are: 'Barriers' and 'Nursing interventions'.

5.1 Barriers to optimal oral health

The barriers to optimal oral health of the elderly are numerous. The barriers which negatively affect the elderly health and wellbeing include: insignificant role, lack of multiprofessional collaboration, lack of access to dental services, lack of dental supplies, the negative impacts of polymedicine and chronic diseases upon the elderly, negative attitudes and perceptions of the elderly, lack of education and skills within the nursing profession and lack of protocols for the nursing professionals.

Insignificant role

It has been seen that the nursing profession admits oral health is of importance yet lacks a remarkable role in oral health promotion and its prevention. The oral care administered by staff is traditionally of subpar quality, done less frequently than optimal and commonly left unperformed. (Coleman 2005, 33-34; Jablonski, Munro, Grap, Schubert, Ligon and Spigelmyer 2009, 99.) Poor oral health was directly linked to inadequate daily oral cares performed by caregivers (Jablonski et al 2009, 100).

Other studies indicated that the level of importance given to oral cares of the elderly was often misunderstood and therefore neglected by those responsible. The absence of professional oral care maybe also be attributed to the professional's inability to notice oral pathology or oral problems. Lack of competence concerning oral health is directly linked to noncompliance. (Putten, Visschere, Maarel-Wierink, Vanobbergen and Schols 2013, 342.)

Lack of multiprofessional collaboration

Collaboration between dental professionals, such as dentists and hygienists, and the nursing professionals has been shown to be less than optimal. This lack of interaction isolates the necessary multiprofessional collaboration needed to promote the oral health of the elderly. (Coleman 2005, 33-34.) Interprofessional collaboration is a crucial necessity to achieve oral success among the elderly populations (Yoon, Lowe, Budgell and Steele 2011, 33).

Lack of access to dental services

Researchers globally reported that the number of elderly people retaining their natural dentition has greatly increased. It has also been noted that the elderly population visiting the dental clinics for regular examinations is at much less than desirable intervals. (Coleman 2005, 34; Coker et al 2013, 2361; Talwar and Malik 2012, 146.) This is attributed to the findings that many of the patients do not have access to dentists or hygienists. In addition, the dental visits typically were not covered by the health insurance and consequently left unattended since the elderly patient must cover the cost. (Coker et al 2013, 2361.) The geriatric population includes a vast majority of elderly whose financial situation and social class lead to a lack of dental visits (Talwar et al 2012, 146). This lack of dental visits increases the elderly person's risk for oral disease and disability (Coleman 2005, 33).

Dentists and other professionals also act as barriers to optimal oral health among the elderly. Dentists may refuse care to the elderly due to a variety of factors. The factors which influence the dentist's refusal of care include: a lack of education or interest in geriatric oral cares, low reimbursement and treatment facilities that cannot accommodate the elderly. Only a minority of physicians view oral cavity as important. (Coleman 2005, 34.) The utilization of dental hygienists is infrequent (Coleman 2005, 34) and often lack effective record keeping and skills in cares pertaining to elderly oral infections (Heath, Sturdy, Edwards, Griffiths, Hyltin, Jones and Lewis 2011, 10-12).

Lack of supplies

In order to improve and maintain the oral health of the elderly tools are needed for implementation of oral care (Talwar et al 2012, 246). Reports conclude that many caregivers lack proper tools such as toothpaste, toothbrush, mouthwash, dental floss and other dental appliances needed to administer oral cares. A study done by Jablonski found that toothpaste was used 68.4% of the time when performing elderly oral cares due the fact that was only available two thirds of the time. (Jablonski et al 2009, 104.)

Polymedication and chronic diseases impact upon the elderly

The elderly population is on the raise and along with the increased life expectancy comes a raise in chronic diseases. Treatment of chronic diseases incorporates the use of multiple medications, polymedication, which adversely affects the oral health status and oral hygiene of elderly. (Coleman 2005, 33). Polymedication influences salivation rate, flavor of nutrition and numerous factors. Ingestion of multiple medications commonly causes dry mouth, decreased appetite (Holman, Roberts and Nicol 2005, 37) and can increasing the predisposition to oral disease. (Jablonski et al 2009, 99; Talwar et al 2012, 145.)

Negative attitudes and perceptions of the nurses

Negative perceptions about oral health care among nursing personnel are factors which adversely influence the administration of oral care among the elderly. These negative perceptions include fear of harming, disgust, and attitudes that such care is unpleasant, burdensome, unrewarding, problematic, and trivial. (Coleman 2005, 34-35.) Nursing staff may perceive caring for a person's mouth as time consuming, difficult, distressing and intrusive (Heath et al 2011, 10). Studies also show that patients with behaviors deemed as resistive typically discouraged oral cares (Coleman 2005, 35; Putten et al 2013, 342.). In some cases the employees were unaware oral care's significance (Forsell, Kullberg, Hoogstraate, Johansson and Sjögren 2010, 257) and believed that tooth loss was a natural consequence of aging (Jablonski et al 2009, 99).

Lack of time

Facilities are commonly understaffed and oral cares are unperformed due to a lack of time (Coleman 2005, 36). Inadequate time allowance decreases interest and motivation to perform adequate daily oral health care for dependent elderly. Oral health care is prioritized (Putten et al 2013, 342) and systemic health is put as a main priority (Talwar et al. 2012, 147). Time constraints adversely affect residents themselves, family members or staff and acts as a barrier to proper oral health and daily oral hygiene (Putten et al 2013, 342).

Lack of education and skills within the nursing profession

Professional knowledge and skill of geriatric nursing is inadequate to face various oral diseases and to achieve an acceptable level of oral hygiene (Putten et al 2013, 342). Nurses lack the necessary training and education to perform proper oral hygiene, promote oral health, and prevent oral disease. This lack of education hinders the further development of nursing skills in the future (Coleman 2005, 35; Forsell et al 2010, 257) and prevents advancement in information sources which could be combined with theory into practice. (Coker et al 2013, 2360.)

The knowledge attained by professional nurses pertaining to oral health is insufficient to care for the dentition of elderly (Forsell et al 2010, 257). Without the proper education nurses are ignorant and unable to report anything unusual in the mouth (Heath et al 2011, 11). Implementations of new care procedures are commonly lack the education and research to ensure promotion of oral health (Yoon et al 2011, 326). Nurses play a vital role in oral health of elderly. Progressive changes and promotion of the oral health of the elderly is only possible with through training and education. (Heath et al 2011, 14.)

Lack of protocols for nursing professionals

The nursing profession presently lacks evidence based oral protocols and oral health continued education concerning the elderly population (Coleman 2005, 35; Forsell 2010, 257). Current oral care guidelines available are inadequate and lack methodical planning. Due to the lack of protocols nurse often administer oral cares using personal reasoning and outdated practices. (Coker et al 2013, 2361,

2362; Coleman 2005, 35.) Research finds that nurses perform oral cares with a swab instead of a toothbrush, which is the most effective for plaque removal, due to the lack of knowledge and lack of protocols (Coleman 2005, 35). Failure to keep updated protocols inhibits the provision of proficient oral care (Coker 2005 2361-2362).

Along with assuring the provision of skilled oral cares protocols assist to implement changes within the oral health of the elderly. Studies indicate a lack in means and support to implement positive changes. (Yoon et al 2011, 329.) Oral health protocols also lack the necessary multiprofessional input needed to promote a better health outcome while ensuring that age is not a reason for prejudice (Talwar et al 2012, 148). Research also indicates that facilities with staff well trained and with strong protocols are often understaffed and unable to perform oral cares due to the lack of time (Coleman 2005, 36).

Daily habits of the elderly with negative oral effects

Habits of the elderly individual affect the oral status directly. Habits such as excessive grinding or clenching of the occlusal surfaces, smoking, and unhealthy nutritional intake commonly affect the oral health of the elderly. Studies show that the elderly people have heavily restored mouths for which a high standard of oral hygiene is required (Talwar et al 2012, 148) yet is not manageable by the elderly (Coleman 2005, 34).

Poor oral hygiene in the dentate elderly and those using dentures increases the incidence and complexity of dental plaque and its unfavorable effects. The elderly with poor oral status are seen to be more worried, self-conscious, uncomfortable with their appearance, irritable and tense with a negative impact on socializing and psychological well-being. Lack of a proactive oral hygiene routine and good lifestyle habits can have a significant impact the oral health of the elderly and cause complications such as edentulism. (Talwar et al 2012, 147-148.)

5.2 Nursing interventions needed to promote oral health

Implementation of nursing interventions are necessary to promote optimal oral health of the elderly. Interventions such as: addressing gaps in education and training, integration of oral health into care plans, oral health assessment and observation by nurses, accessible dental appliances and an increased multiprofessional collaboration are means to promote the oral health of the elderly. A full table addressing quotes, subcategory and themes concerning our research question number two can be found in the appendix.

Address Nursing Educational Gaps in Oral Health Education and Training

Increased education and focus pertaining to oral health of the elderly is a necessity to the promotion of oral health and systemic health. Elderly oral health education should be in much greater volume within the nursing curriculum and practice. (Coleman 2005, 33; Forsell et al 2010, 257.) Integration of educational content pertaining to elderly oral health is needed in multiple areas in the nursing studies such as nutrition, promotion, health assessment, psychosocial, and palliative care. Discussions regarding the education content, knowledge and skills would be highly beneficial if done in close association with nursing educators and dental professionals alike. (Coleman 2005, 35-36.)

Promotion of oral health and the prevention of diseases in a multiprofessional effort. Often oral health is thought to be an issue for the dental teams yet it is an obligation for all those incorporated with care of the elderly. (Heath et al 2011, 15.) Increased awareness about oral health's significance within an educational setting is the first and very essential step towards change. A new design of elderly oral health education within the nursing curriculum should have theory that is evidence based with great emphasis upon the preventative interventions, skills and preventative effects of improved oral care. Expanded knowledge regarding oral health's effects upon systemic disease is needed by nursing and dental professionals (Coleman 2005, 34-35; Forsell et al 2010, 256-257). Education which is evidence based is a plausible means to raise nursing staff's motivation to administer daily oral hygiene which directly impacts the oral health status of the elderly (Forsell et al 2010, 258).

Nurses lack a distinct and viable definition as the meaning of oral care. This definition would be greatly beneficial as it would offer a routine and united way of offering oral services. It would also assist to describe interventions of patients, emphasize the need for further research and facilitate the development of protocols. (Coker et al 2013, 2361; Forsell et al 2010, 257.) A clear definition of oral health care would increase nursing awareness, knowledge and provide factual information. This may increase the attitude and confidence of the nurse towards administration of oral care even when faced with complicated patients such as elderly who are resisting oral cares. (Coker et al 2013, 2367.) Nurses should also have intricate knowledge of the impact of disease, age and medicine upon the elderly population and know when to consult the doctor if changes or modifications in treatment are necessary (Heath et al 2011, 9-14).

Care plan integration to educate patient and counsel regarding oral health

Care plans should be written along with the patient to assess an appropriate plan of care. The care plan is an individualistic plan of action according to the patient's needs and personal views. It will assist to plan, appraise and document care administered. (Heath et al 2011, 10-11.) The intimate knowledge of the patient assists the nurse to plan an individualized approach of care which details assistance needed and the necessity for a referral (Coker et al 2013, 2365).

Education and tools regarding maintenance of teeth and preventative therapy is often absent with the elderly population. It is vital that the nurse educates and inspires the elderly person to maintain exemplary oral health and attend regular screenings. In order to attain maximal success with the elderly oral health the care plan process should also strive to engage family members and other caregivers. (Talwar et al 2012, 148.) The nurses should educate upon oral health's significance, benefits and offer support for all issues regarding oral cares (Heath et al 2011, 15). It is important to inform the patient that oral cares does not demand special equipment but requires the patient to follow a daily routine. The patient's routine should be customized according to individual needs and preferences. (Holman et al 2005, 37.)

Education to improve the oral hygiene and knowledge of the elderly is of great importance (Forsell et al 2010, 256). Nurses strive to increase the elderly patient's knowledge about numerous health issues while creating a care plan. Care plans should include information about a healthy diet and its impacts on oral health. Normal eating patterns and levels of oral fluids are important to discuss with the elderly patient. Nurses should emphasize the role of saliva and its assistance with cleansing and moisturizing the mouth. (Holman et al 2005, 37.) Instruction and guidance in regards to the effects of medicine and disease upon oral health should also be discussed and further instructions given in it is necessary (Heath et al 2010, 9).

Oral health assessment and observation by nursing staff

The active administration of oral cares by a nurse is needed at an increased rate, especially for those who lack access to dental services (Coleman 2005, 34). Many of patients depend on the nurse to conduct oral health screenings and to provide daily oral hygiene (Coker et al 2013, 2361). Unfortunately, it common for nurses to minimize the consequences and impacts of dry mouth and other oral sequel of seniors' medication regimen (Coleman 2005, 35).

Regularly scheduled oral assessments conducted by the nursing staff are indicated to monitor the effectiveness of oral hygiene interventions. These oral assessments assist the nurse to determine the presence of oral changes and the need to refer patients for further care. (Heath et al 2011, 11.) Assessments include a physical examination of the mouth, gums, tongue, lips to note for signs of dehydration and decay (Holman et al 2005, 37). The assessment should also include the individual's statements regarding their own personal feelings and attitudes pertaining to oral health and cares while making note of the patient's mental and physical ability to perform such tasks. Assessments assist the nurse to evaluate the elderly patient's need for additional encouragement and support to obtain consistent oral hygiene. Oral assessments also assist the nurses to establish strategies to cope with patients resistant to oral cares and those who need an expanded level of oral assistance. (Heath et al 2011, 11-13.)

Accessible dental appliances and oral health interventions

A commonly known and simple nursing intervention, brushing the teeth, is important to improve the elderly patient's health benefits and may enhance the elderly person's quality of life (Coleman 2005, 34). This nursing intervention is shown to prevent infection and tooth decay by removing debris from the mouth and tongue. Administration of any oral health interventions are to be supported by nurses using all means necessary. The nurses may be required to assist with brushing while ensuring that the patient can reach all the equipment. (Holman et al 2005, 35.) Oral care support means that nurses are to ensure the elderly person has the tools and the knowledge to properly perform oral cares (Coker et al 2013, 2369).

Nurses also play an important role in motivating other staff members to deliver oral cares. Implementation of oral cares is best when rendered in an environment where all are driven towards a unified goal in oral health's promotion. (Yoon et al 2011, 330.) This unification of goals is possible when the nurse offers guidance and tools to maneuver oral cares (Coker et al 2013, 2369; Jablonski et al 2009, 99). Analyzation of caregivers' point of view regarding obtaining optimum oral health for elders is the duty of the nurse. The analysis helps expose areas to be developed and indicates need for further training. (Coleman 2005, 36.)

Multiprofessional collaboration

Collaborative cooperation between nursing and dental professionals is essential to facilitate oral care administration for the increasingly complex and diverse elderly population. Multi-professional communication may increase elderly oral health awareness while raising oral care standards. Development of oral health and quality of life for the elderly is possible if professions work as a team rather than individually (Coleman 2005, 35-38.)

Analytical discussions between professionals aide to lessen inequalities within oral health care of the elderly. To reach mutual goals in elderly oral health nursing and dental professionals must learn to effectively communicate, educate and support one another. Unified professionals can effectively promote

interdisciplinary training and consistent care practices to increase excellence in geriatric health care. (Coleman 2005, 33-36; Yoon et al 2011, 330.) Proper support is vital to an oral health's setting and is promoted by the availability of needed tools, products, communication and interprofessional teamwork to ensure necessary changes in oral care practices (Yoon et al 2011, 330).

6 DISCUSSION

This study promotes and highlights the significant role nurses play in the promotion of oral health for the elderly. While providing detailed descriptions of oral disease complications the essay offered numerous nursing interventions to oral health promotion. These suggestions could be used by future and current nurses to improve a nurse's impact on elderly oral health. Seeking support from professionals within and outside the nursing profession to enhance the elderly population's oral health is necessary. The research lacks the means or method to contact professionals yet it greatly enforces its significance. The limitations to access data free to the students and increased drive to produce a thesis in minimal time allotment was accepted by the authors. Despite the limitations the authors established strong correlations from data obtained.

Picture 1: Barriers to optimal oral health



The picture, drawn by an author of this thesis, portrays the barriers to optimal oral health of the elderly. The setting includes an elderly patient, is 87 years old, and his nurse. The nurse's lack of time is depicted with the clock where the hands are moving at an accelerated rate. The nurse is looking downward at the patient while

wearing a mask to display the lack of interest and motivation toward oral cares. The elderly patient is reaching for a toothbrush but is not able to access it. This is meant to show the lack of supplies and lack of access for dental services the elderly patients face. The nurse is reaching up to her higher priority, medication administration. The numerous bags of medications are also barriers due to the impact that polymedication has on the oral health of the elderly patients. The trash can, that contains the fictitious book, displays the lack of current knowledge and standards available for nurses regarding oral health topics. The complete absence of dental professionals in the picture describes the lack of collaboration between nursing and dental professionals.

The need to constantly train and advance nursing skills was made present through the research. Nurses lack the confidence and literacy to complete competent oral cares for the elderly population. Through increased education and skills training nurses can shed the barriers which impede excellent oral cares. Feelings such as oral care is unimportant, fear of harming the patient, lack of motivation and lack of support felt by the nurses are often linked to lack of skill or knowledge. Therefore, it is of grave importance that nurses gain personal knowledge to promote holistic health for their elderly patients.

Picture 2: Interventions to promote oral health of the elderly



The interventions to promote the oral health of the elderly is shown on the right side. Here the nurse has removed the barriers to oral health, the mask, and is now approaching the patient with no clock to rush her along. Her hand is placed on the patient's shoulder, showing support, while her other hand is reaching for the toothbrush to assist the elderly patient with oral cares. The smile on her face shows an improved attitude towards the significance of oral health. The single medication is in a knot to indicate a reduction in polymedication and a realization of polymedications impact upon oral health. The shelf on the side holds a note reminding the patient that he has a dental appointment, DDS, in the future. This is to show that the patient now has the tools and access to the dental cares that he didn't have previously. The two molars, giving a high five, depicts a strong nurse and dental collaboration that is essential to the promotion of elderly oral health.

Studies strongly indicate the need for further research and oral health implementations to promote the oral health of the elderly population. Unless significant changes are made to oral health policies the elderly population's general health will be increasingly impacted by oral health complications. The vital role which oral health plays upon the systemic health of the elderly must be elevated within the nursing profession to ensure general health and well-being. Further research done in partnership with nursing and dental professionals could yield significant results to produce positive changes in elderly oral health status. (Putten et al 2013, 344; Coleman 2005, 37-38.)

Ethics assists nurses to make moral decisions concerning the delivery of nursing care. The care provided in a holistic fashion is based on the ethical standards. These ethical standards offer a means for nurses to better understand and evaluate the daily admission of care and the need for further developments. (American Nurses Association 2014, 374). This study emphasized the need to improve the harmonious relationship between the nurse and patient. This is possible if the nurses use their ethics to administer effective nursing care, to better understand the systemic conditions and to improve the patient's experience of care (Williams 2013, 146).

Careful ethical considerations were adopted by the authors while composing this essay. During the construction of this thesis the authors followed the precise guidelines which assist in the ethical considerations of all participants in the study. The authors of this study followed Lahti University of Applied Sciences ethical guidelines which are found in the Thesis guidelines book. This study properly quotes and cites all information extracted from scientific articles according to Lahti University guidelines. To ensure ethical consideration is enforced the authors must refrain from changing data which would be dishonest and lead to misrepresentation of data. (Logan University 2015.)

The reliability of this essay has been found to be of sound value and information justifiable. Reliability may be defined in numerous ways. The definition of reliability the authors use is one where validity indicates how well grounded and justifiable the information is. Reliability indicates the veracity, suitability and quality used to attain information used to answer research questions. Since the data used in this study is of sound roots, peer reviewed and from scientific databases the authors conclude that this research study is valid and accurate. In research reliability is described as a symmetry of meanings found from numerous authors and their correspondence to each other. (Powers & Knapp 2006, 185.) Consistency or symmetry in this study is justified since strong correlation is seen between the aim of the study, research questions and the findings.

The authors of this study intend to offer this thesis to nursing educators and those in management positions where basic cares are provided. This partnership may promote collaboration whereby a synergistic relationship may be formed to ensure the maximum benefit of the oral health of the elderly. By working together, the oral health of the elderly can be improved to a greater extent than what could be achieved with individual efforts. Nursing educators may use this study to teach future nurses and those in management may wish to use this as a guide to elevate employee awareness.

The authors of this study would suggest further studies to promote elderly oral health care to be done. We feel it would be necessary to set up a direct collaboration between dental and nursing professions to ensure the maximum

learning potential is reached. The partnership of professions would allow the integration of knowledge needed to ensure the elderly population is receiving the best care possible. Due to time constraints the authors of this study were not able to implement such a joint commission yet would highly recommend it for future studies.

Further studies to develop multiprofessional collaboration, oral health improvement strategies and standards of oral health could be further developed in the future. Future research regarding the provision of oral health care demands expertise and wisdom regarding the incorporation of multiple methods of treatment. This multidimensional and multiprofessional approach would require exceptional time, patience and energy to combat oral health's complex issues. (Talwar et al 2012, 148.) Improvement in the oral health of the elderly population demands joint efforts instead of individual attempts towards change.

The medical field can rejoice with the many accomplishments that have greatly extended the elderly persons lifespan. Continuous development is needed to ensure the best care offered for the geriatric population. Elderly oral health is a significant issue in need of development to ensure holistic health of the elderly. The promotion of elderly oral health is possible with multi-professional collaboration. Each health care professional can produce positive changes to the oral health of the elderly no matter which professional title they hold. It is for this reason that the authors of this thesis wished to offer a study which may be used to promote the oral health of the elderly and increase professional awareness.

7 REFERENCES

Albrecht, M., Kupfer, R., Reissmann, D., Haastert, B., Mühlhauser, I. & Köpke, S. 2013. Oral health educational interventions for nursing home staff and residents (Protocol). The Cochrane Library. Iss. 5, p. 1-12 [Accessed 31.1.2015]. Available in Cochrane Library: <http://onlinelibrary.wiley.com>.

Alexander, D. 2009. Leading the world to optimal oral health: The FDI World Dental Federation. Dental Abstracts. Vol. 54, Iss. 4, p. 172-173 [Accessed 3.3.2015]. Available online: <http://ac.els-cdn.com>.

Al-Sinaidi, A. 2012. Periodontal health and oral hygiene practice of elderly Saudis living at Riyadh Nursing Home. King Saud University Journal of Dental Sciences. Vol. 3, Iss. 1, p. 1–5 [Accessed 3.3.2015]. Available in Science Direct database: <http://www.sciencedirect.com>.

American Nurses Association. 2014. American Academy of Nursing: Ethics Policy-Maintaining high standards. Nursing Outlook. Vol. 62, Iss. 5, p. 374-375 [Accessed 16.3.2015]. Available in Science Direct database: <http://ac.els-cdn.com>.

Baseer, M., Rahman, G., Asa'ad, F., Amoudi, F. & Bluwi, F. 2014. Knowledge, Attitude and Practices of Gynecologists Regarding the Prevention of Oral Diseases in Riyadh City, Saudi Arabia. OHDM. Vol. 13, No. 1, p. 97- 102 [Accessed 3.3.2015]. Available online: <http://oralhealth.ro>.

Carter, S. & Little, M. 2007. Justifying Knowledge, Justifying Method, Taking Action: Epistemologies, Methodologies, and Methods in Qualitative Research. Qualitative Health Research. Vol. 17, Iss. 10, p. 1316-1328 [Accessed 17.10.2014]. Available in Sage database: <http://qhr.sagepub.com>.

Chalmers, J. & Pearson, A. 2005. Oral hygiene care for residents with dementia: a literature review. Journal of Advanced Nursing. Vol. 52, Iss. 4, p. 410-419 [Accessed 10.11.2014]. Available in EBSCO database: <http://web.b.ebscohost.com>.

Clark, C. 2004. *Holistic Nursing Approach to Chronic Disease*. Springer Publishing Company. p. 1- 293 [Accessed 3.11.2014]. Available in Ebrary database: <http://site.ebrary.com>.

Coleman, P. 2005. Opportunities for nursing-dental collaboration: Addressing oral health needs among the elderly. *Nursing Outlook*. Vol. 53. p. 33-39 [Accessed 3.11.2014]. Available on EBSCO database: <http://www.sciencedirect.com>.

Coker, E., Ploeg, J., Kaasalainen, S. & Fisher, A. 2013. A concept analysis of oral hygiene care in dependent older adults. *Journal of Advanced Nursing*. p. 2360–2371 [Accessed 3.11.2014]. Available in EBSCO database: <http://web.b.ebscohost.com>.

Cronin, C. 2014. Using case study research as a rigorous form of inquiry. *Nurse Researcher*. Vol. 5, Iss. 21, p. 19-27 [Accessed 22.10.2014]. Available in EBSCO database: <http://web.a.ebscohost.com>.

Cronin, P., Ryan F. & Coughlan M. 2008. Undertaking a literature review: a step-by-step approach. *British Journal of Nursing*. Vol.17, No. 1, p. 38- 43 [Accessed 16.1.2015]. Available in PubMed: <http://www.ncbi.nlm.nih.gov>.

Edwards, S. 2007. Critical thinking: A two-phase framework. *Nurse Education in Practice*. Ep. 7, p. 303-314 [Accessed 22.10.2014]. Available in Elsevier database: <http://ac.els-cdn.com>.

FDI. 2015. Optimal oral health. [Accessed 3.3.2015]. Available online: <http://www.fdiworldental.org>.

Finkelstein, M. 2013. *A Guide to Clinical Differential Diagnosis of Oral Mucosal Lesions* [Accessed 8.12.2014]. Available online: <http://www.dentalcare.com>.

Forsell, M., Kullberg, E., Hoogstraate, J., Johansson, O. & Sjögren, P. 2010. An evidence-based oral hygiene program for nursing staff. *Nurse Education in Practice* 11. p. 256- 259 [Accessed 3.3.2015]. Available in Science Direct database: <http://www.sciencedirect.com>.

Garrard, J. 2014. Health Sciences Literature Made Easy: The Matrix Method. Massachusetts: Jones and Bartlett Learning.

Glick, M. & Meyer, D. 2014. Defining oral health: A prerequisite for any health policy. The Journal of the American Dental Association. Vol. 145, Iss. 6, p.519–520 [Accessed 3.3.2015]. Available in Jada database: <http://jada.ada.org>.

Grinspun, D. 2008. Oral Health: Nursing Assessment and Interventions. Nursing Best Practice Guideline. p. 1-97 [Accessed 3.3.2015]. Available online at: <http://rnao.ca>.

Heath, H., Sturdy, D. Edwards, T., Griffiths, J., Hylton, B., Jones, V. & Lewis, D. 2011. Promoting older people's oral health. Nursing Standard. p. 1-20 [Accessed 3.3.2015]. Available: <http://web.a.ebscohost.com>.

Holman, C., Roberts, S., & Nicol, M. Promoting oral hygiene. Nursing older people. Vol. 16, No. 10, p. 37-38 [Accessed 3.3.2015]. Available in EBSCO database: <http://web.a.ebscohost.com>.

Jablonski, R., Munro, C., Grap, M.J., Schubert, C., Ligon, M. & Spigelmyer, P. 2009. Mouth Care in Nursing Homes: Knowledge, Beliefs, and Practices of Nursing Assistants. Geriatric Nursing. Vol. 30, No. 2, p. 99-107 [Accessed 29.1.2015]. Available in Science Direct database: <http://www.sciencedirect.com>.

Klebanoff, N. & Hess, D. 2013. Holistic nursing: Focusing on the whole person. American Nurse Today. Vol. 8, No. 10 [Accessed 8.12.2014]. Available online: <http://www.americannursetoday.com>.

Knight, J. & Leeuw, W. 2014. An Introduction to the Herpes Viruses. [Accessed 8.12.2014]. Available online: <http://www.dentalcare.com>.

Kotzer, R., Lawrence, H., Clovis, J., & Matthews, D. 2012. Oral health-related quality of life in an aging Canadian population. Health and Quality of Life Outcomes. p. 1-12 [Accessed 1.11.2014]. Available in EBSCO database: <http://web.a.ebscohost.com>.

Logan University. 2015. Literature Review: Ethical Considerations [Accessed 3.3.2015]. Available online at: <http://libguides.logan.edu>.

Najjar, T. 2014. Bacterial Mouth Infections. [Accessed 8.12.2014]. Medscape. Available online: <http://emedicine.medscape.com>.

NIH 2014a. Diseases and Disorders. [Accessed 1.11.2014]. Available online: <http://www.nidcr.nih.gov>.

NIH 2014b. Periodontal (Gum) Disease: Causes, Symptoms, and Treatments. [Accessed 9.12.2014]. Available online: <http://www.nidcr.nih.gov>.

Nitschke, I., Majdani, M., Sobotta, B., Reiber, T. & Hopfenmuller, W. 2009. Dental care of frail older people and those caring for them. Journal of Clinical Nursing. Vol. 19 Iss. 13/14, p. 1882-1890 [Accessed 1.10.2014]. Available in EBSCO database: <http://web.a.ebscohost.com>.

O'Reilly, M. & Parker N. 2012. 'Unsatisfactory Saturation': a critical exploration of the notion of saturated sample sizes in qualitative research. Qualitative Research. Vol. 13, No. 2, p. 190-197 [Accessed 31.1.2015]. Available in Sage Database: <http://qrj.sagepub.com>.

O'Connor, L. 2012. Nursing Standard of Practice Protocol: Providing Oral Health Care to Older Adults. Evidence-Based Geriatric Nursing Protocols for Best Practice 4th Edition [Accessed 3.3.2015]. Available online: <http://consultgerirn.org>.

Petersen, P., Kandelman, D., Arpin, S., & Ogawa, H. 2010. Global oral health of older people-call for public health action. Community Dental Health. p. 257- 268 [Accessed 3.10.2014]. Available online: <http://www.who.int>.

Petersen, P.E. 2003. The world oral health report 2003: Continuous improvement of oral health in the 21st century-the approach of the WHO global oral health programme. Community Dentistry and Oral Epidemiology. Iss. 37. p. 1-8 [Accessed 22.10.2014.] Available in EBSCO database: <http://web.b.ebscohost.com>.

Powers B. & Knapp T. 2006. Dictionary of Nursing Theory and Research. Third Edition. Springer Publishing Company, Inc. 1- 193 [Accessed 17.10.2014].

Available online: <http://www.academia.edu>.

Putten G., Visschere, L., Maarel-Wierink, C., Vanobbergen, J. & Schols, J. 2013.

The importance of oral health in (frail) elderly people-a review. European Geriatric Medicine 4. p. 339-344 [Accessed 3.3.2015]. Available in Science

Direct database: <http://ac.els-cdn.com>.

Saman, D., Andrine, L., Oscar, A. & Lutfiyya, N. 2014. A population-based study of edentulism in the US: does depression and rural residency matter after controlling for potential confounders? BMC Public Health. Vol. 14. Iss.1. p. 1-23 [Accessed 22.10.2014]. Available in EBSCO database:

<http://web.b.ebscohost.com>.

Talwar, M. & Malik, G. 2012. Oral health considerations for the elderly- problems and management strategies. Indian Journal of Dentistry Vol. 4, Iss. 3, p. 145-151 [Accessed 3.3.2015]. Available in Science Direct database:

<http://www.sciencedirect.com>.

U.S. Department of Health and Human Services. 2000. Oral Health in America: A Report of the Surgeon General. p. 1-308 [Accessed 22.10.2014]. Available online:

<http://silk.nih.gov>.

Vaismoradi, M., Turunen, H. & Bondas, T. 2013. Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. Nursing and Health Sciences. Vol. 15, Iss. 3, p. 398-405 [Accessed 21.10.2014]. Available in EBSCO database:

<http://web.b.ebscohost.com>.

Wakefield, A. 2014. Searching and critiquing the research literature. Nursing Standard. Vol. 28 Iss. 39, p. 49-57 [Accessed 17.10.2014]. Available in EBSCO database:

<http://web.a.ebscohost.com>.

WHO. 2014a. Aging. [Accessed 8.12.2014]. Available online:

<http://www.who.int>.

WHO. 2014b. Oral health. [Accessed 8.12.2014]. Available online:

<http://www.who.int>.

Williams, J. 2013. Nursing ethics in everyday practice. *Journal of Radiology Nursing*. Vol. 32, Iss. 3, p.146 [Accessed 16.3.2015] Available in Science direct database: <http://ac.els-cdn.com>.

Yoon, M., Lowe, M., Budgell, M. & Steele, C. 2011. An exploratory investigation using appreciative inquiry to promote nursing oral care. *Geriatric Nursing*. Vol. 32, No. 5, p. 326-340 [Accessed 3.3.2015]. Available in EBSCO database: <http://ac.els-cdn.com>.

Zeng, X., Luo, W., Quan, W., Yi, G. & Leng, W. 2013. Tooth Loss and Head and Neck Cancer: A Meta-Analysis of Observational Studies. *PLoS ONE*. Vol. 8 Iss. 11, p. 1-8 [Accessed 22.10.2014]. Available in EBSCO database: <http://web.a.ebscohost.com>.

APPENDICES

APPENDIX I: *Quotes, Category, and themes for barriers to optimal oral health of the elderly. (First research question)*

<i>Quotes</i>	<i>Category</i>	<i>Themes</i>
''The importance of oral health is often misunderstood and neglected by nurses'' (Putten et al. 2009, 342)	Significance of duties and education priorities of the nurses	Insignificant role
''Lack of interaction between dentistry and nursing isolates multiprofessional collaboration'' (Coleman 2005, 36)	Level of cooperation between professionals and its effect on elderly oral health	Lack of multiprofessional collaboration
''Patients lack access to dental services and dental tools'' Coker et al. 2013, 2361)	Access to dental services	Lack access to dental services.
''Nursing assistants may only be using toothpaste 68.4% of the time because it is only available two thirds of the time'' (Jablonski et al. 2009, 104)	Availability of dental supplies, services and tools for the patient and care provider	Lack of dental supplies
''The complexity of oral health status, systemic diseases, and the use of multiple medications make (frail) elderly people more vulnerable to oral problems'' (Putten et al. 2009, 339)	Effects of systemic diseases and the medicine taken upon the geriatric individuals	Polymedicine and chronic diseases impact upon the elderly
''Nurses with low interest and motivation to perform daily oral health care in themselves are hindered in performing adequately daily oral health care in dependent residents'' (Putten et al. 2009, 342)	Motivation and interest levels influence on the administration of oral cares	Negative attitudes/perceptions of the nurses

<p>“Nurse’s oral care knowledge, or lack thereof, has been cited throughout the literature as a major barrier to the provision of effective oral care” (Yoon 2011, 332)</p>	<p>Professional literacy and its effect on the elderly oral health status</p>	<p>Lack of education and skills within the nursing profession</p>
<p>“Habitual grinding, smoking and unhealthy nutritional intake are factors by which patients influence their individual oral health on a daily basis” (Talwar et al 2012, 148)</p>	<p>Elderly lifestyle choices and negative impacts</p>	<p>Daily habits of the elderly with negative oral effects</p>
<p>“Facilities are understaffed and lack the time so they not able provide good care even when they are well trained” (Coleman 2005, 36)</p>	<p>Time limitations</p>	<p>Lack of time</p>
<p>“Official policies for oral care and oral hygiene educations are scarce” (Forsell 2010, 257)</p>	<p>Presence of protocols</p>	<p>Lack of protocols</p>

APPENDIX II: *Quotes, subcategory and themes for nursing interventions to promote oral health of the elderly (Research question 2)*

Quotes	Subcategory	Theme
“There is a great need to educate about oral health care for the elderly in both nursing education and practice” (Coleman 2005, 33)	Advancement of professional knowledge and skills	Address Educational Gaps in Oral Health Education and Training for Professional Nurses
“Care is to be delivered by a nurse using knowledge of the patient to plan an individualized approach to care” (Coker et al., 2013, 2365)	Planning, education and advice administration for all incorporated with oral cares	Integrate care plans to educate patient and counsel regarding oral health
“Oral assessments should be carried out at regular intervals to monitor the effectiveness of oral hygiene interventions and nurses should be able to recognize changes and refer patients” (Heath et al., 2011, 11)	Consistent assessments and documentation to ensure optimum care.	Oral health assessment and observation by nursing staff
Nurses are in a position to make an impact on oral health outcomes of their patients, but they need to have the tools and know how to intervene to make a difference (Coker et al., 2013, 2369)	Availability of dental care and methods of implementation	Accessible dental appliances and interventions for staff and patient
“Working together, nurses and dental professionals can raise awareness of this issue, promote higher standards for oral care, and improve oral health and quality of life for elderly” (Coleman 2005, 33)	Cooperation of multiple professionals with the intent to deliver comprehensive individualized oral care.	Multiprofessional collaboration between dental and nursing professionals

