

## Original Article

## Oral Health in the Shadow of Clinical Nursing and Caring Science

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### Abstract

**Background.** In the Western world, people's oral health has generally improved for the last decades. The importance of good oral health is emphasized in hospitalization. Oral infections, a number of somatic illnesses and mortality can be avoided by focusing on the patient's oral hygiene. The importance of oral health for the human being's general health and well-being has been deprioritized in academic nursing education and in the context of clinical nursing which, in turn, has created a gap in knowledge in this area.

**Aims.** To deepen the understanding of the importance of oral health for general health and to examine the reasons why nurses do not integrate patients' oral health within the context of clinical nursing.

**Methods.** Descriptive, narrative literature review with inductive elements. Articles published from 2003 to 2018 and indexed in Cinahl, Medic, PubMed and Embase databases were used. Reference lists of retrieved journal articles were searched for publications missed during the first search. Qualitative content analysis was used to analyse the research material.

**Results.** The search yielded 14 articles with observational studies, descriptive reports and reviews. The patient's integrated clinical nursing involves oral hygiene and interdisciplinary collaboration. The lack of understanding and prioritizing the patient's oral health are causally connected with the nurse's own attitude about the context of oral health, cooperation with the patient and the healthcare organization's ability to enable good oral hygiene. Nurses' ethical and moral responsibility is to provide and lead oral care practices in the clinical nursing context.

**Conclusion.** Oral health and oral hygiene remain overshadowed in clinical nursing. Academic nursing education, healthcare organizational strategies, routines and regular good oral hygiene give nurses confidence to protect life and health and alleviate suffering.

**Key words:** Clinical nursing, caring science, content analysis, nurses, oral health, oral hygiene, oral care, review.

### Introduction

Oral health is an important part of human general health, well-being and self-esteem. Good oral health and hygiene means that a person can ingest food unimpededly and painlessly with biofilm free (plaque-free) natural teeth or dentures, healthy gum, tongue, mucous membranes and lips as well as converse and communicate with fellow beings (Andersson 2006; Bergström 2016; Kassebaum et al. 2015; Wretling & Gahnberg 2017). If oral health and oral hygiene are poor, social life suffers as a result of bad breath and the personal, subjective criticism of one's own looks. Poor oral hygiene can lead to several serious somatic illnesses and infections (Bernabé et al. 2009; Wårdh et al. 2000). The oscillating, dialectic movement of

oral and general health is created already during pregnancy and at birth. The mouth and respiratory organs are in contact with air which means that they are the most important infection source for contagious airborne diseases (Bergström 2016; Byrd et al. 2018; Desvarieux et al. 2013; El-Solh 2011).

Natural teeth or dental replacements can be seen as a measure of improved health and quality of life, but also entail an increased risk of suffering from oral and dental diseases. Several natural teeth or dental replacements especially on patients in clinical nursing context indicate to an increased need for good oral care. Hospital or institutional patients are vulnerable and the risk of suffering from illness and physical disabilities increases. It is a mutual and complex relationship

between oral and general health. Systemic diseases may increase the risk of oral diseases and vice versa (Wiener & Waters 2018; Wretling & Gahnberg 2017).

Caring science as a humanistic academic scientific basis aims to serve health and life and alleviate suffering with a truthful intention. In this truthful intention is a research ethical responsibility to dedicate caring science oral health research to the patient and this dedication represents the service of society (Honkavuo 2014). The art of dedication is crucial within clinical caring science and means that knowledge opens for a deeper understanding of the meaning and importance of caring and oral health.

Oral health is a sub-discipline to clinical nursing and caring science (Eriksson 2001). Nurses' moral and ethical responsibility involves the context-specific basic task of clinical caring science; to serve the patient's oral health and oral hygiene. Academic nursing education institutions have not sufficiently highlighted the importance of oral health in theoretical teaching or integrated practical studies in oral healthcare for nurse students, which have created a gap in knowledge and professional skills, lack of understanding, and insecurity among nurses in a clinical nursing context (Bersell 2017; Byrd et al. 2018; Hovliaras 2010; Willumsen et al. 2012; Yanagisawa et al. 2018).

## Background

Human beings' responsibility for their oral health is highlighted because it is also a social issue. Good oral health and self-care can prevent illnesses. Prophylaxis, fluoride varnish programmes, the daily use of xylitol products, a sugar-free diet, regulated sweet intake, oral status check-ups, and the integration and promotion of careful and regular oral hygiene habits should begin in early childhood ((Bergström 2016; Bersell 2017; Wretling & Gahnberg 2017). The self-care of good oral hygiene is enabled by the use of correct tools and means of cleaning teeth, mouth, orthodontic instruments, bridges and dentures (Bergström 2016; Bersell 2017; Florin et al. 2006; Hovliaras 2010; Yanagisawa et al. 2018).

Vulnerable patients need nurses' assistance to maintain good oral health can suffer from impaired cognitive or physical ability, long-term illnesses, be intensive care unit or cancer patients (Desvarieux 2013; El-Solh 2011; Forsell et al.

2011; Konradsen 2012; Yoon & Steele 2012). Patients and their next-of-kin are not always aware of the consequences of poor oral health. Focus on other care priorities or interests may lead to a deprioritization of oral health (Bersell 2017; Florin et al. 2006; Wårdh et al. 2000).

Impaired oral health can lead to mouth dryness, increased occurrences of mucus and fungal infections. Mouth dryness increases the risk for caries, gingivitis and other infections (Andersson 2006; Bergström 2016; Desvarieux 2013; Willumsen et al. 2012). Mouth dryness is a side effect of a number of medications. The risk for mouth dryness increases with polypharmacy. Changes in the production of saliva as a result of age, somatic illnesses or radiation can affect the throat and cause chewing difficulties. This can lead to loss of appetite and weight (Andersson 2006; Yoon & Steele 2012). Cariological dental diseases include the formation of caries, which is caused by the composition of saliva and a diet that contains sugary products in some form. Parodontitis is loosening of the teeth caused by bacteria. It destroys both gum tissue around the teeth and the actual jawbone. Gingivitis and caries are the biggest disease groups threatening today's modern human being (Bersell 2017; Desvarieux 2013; El-Solh 2011; Wretling & Gahnberg 2017; Wårdh et al. 2000).

From a caring science perspective, this study aims to deepen the understanding of the importance of oral health for general health in clinical nursing context and to examine the reasons why nurses do not integrate patients' oral health within the context of clinical nursing. This study asks: 1) How is the relationship between oral health and the human being's general health described? And, 2) What causes affect nurses in fulfilling oral care in the clinical caring context?

## Methods

Content analyses of narrative literature reviews are descriptive syntheses of the material and follow the principles of the method. The aim of the material-based qualitative content analysis is to present the theoretical unit of research material, without changing the original knowledge, that can lead to the emergence of a new interpretation (Higgingbottom 2004; Horsburgh 2003; Polit & Beck 2013).

### *Selection criteria of material*

The selection of material for this study was made to comprehensively identify relevant knowledge

content, find structures and common characteristics in terms of research objects and to provide a background for understanding. The examination is also done to map out possible gaps in current knowledge. The aim and research questions of this study guided the literature search and added a framework for the selection. The aim of the literature search was to strive for precision, relevance, openness and originality and to conduct a retroactive search. Additionally, the aim was to find references that describe how the meaning-bearing substance articulated in the aim of the study is presented and understood in caring science research.

Inclusion and exclusion criteria determined the search procedure and simultaneously contributed to increasing the study's validity. The selected studies are qualitative or quantitative scientific original references published between 2003 and 2018 in English language. Publications were excluded that did not equal this study's area of interest or caring science substance. Older publications, secondary literature studies, textbooks and popular science productions were also excluded. This study does not intend to include all research on this topic but limits itself to the already articulated starting-point. In view of that, studies that focus on oral health among children, or pregnant women, or psychiatric patients and studies with pragmatic or normative directions were excluded. A flow chart over the selection of the material is presented in figure 1.

### **Collection of material**

Search words used in different concept combinations are the key concepts of this study. Relevant references were continuously monitored as long as the research lasted. Systematic, electronic and manual literature searches were made on several separate occasions during the time period May-September 2018 in the international databases Cinahl, Medic, PubMed and Embase. The search strategy was verified by a health librarian. Absolute before-hand decisions were eliminated as regards to references in the initial phase of the research process, which explains why the exact number of hits for the search is impossible to present. Current knowledge was connected to clinical nursing, nurses, oral health and oral care, caries, diseases caused of parodontitis, mouth dryness, mucous lesions, oral- and lip function, life quality, pain, communication and general health. The search resulted in 14 articles.

### **Analysis of the material**

The collected material provided the starting-point for the application of inductive content analysis. The different phases used during analysis were condensation, grouping and abstraction. The material was analyzed according to qualitative content analysis (Polit & Beck 2013). The aim and research questions of this study guided the analysis procedure throughout the whole research process.

The analysis began with a repeated reading of the material to create a whole. Then, the meaning units and concepts that answered the research questions were marked. In this a preliminary cipher was set. All the meaning units and preliminary ciphers were discussed based on the material and coordinated through consensus. This condensation was performed to present coded subcategories.

The subcategories were then grouped so that material with similar meaning content could be connected. This was done in order to present coded upper categories and to coordinate the material in the various categories so that they were internally homogenous and externally heterogenous.

The sub- and upper categories were re-examined from the perspective of the original material to ensure that they answered the research questions and described the aim of the study. The upper categories were finally abstracted into a meaning-bearing main category. The oscillating movement of the analysis process between the text and the whole opened up for a deeper understanding of the object of study. The study's inductive element aims to generate new theory (Figure 2).

### **Ethical considerations**

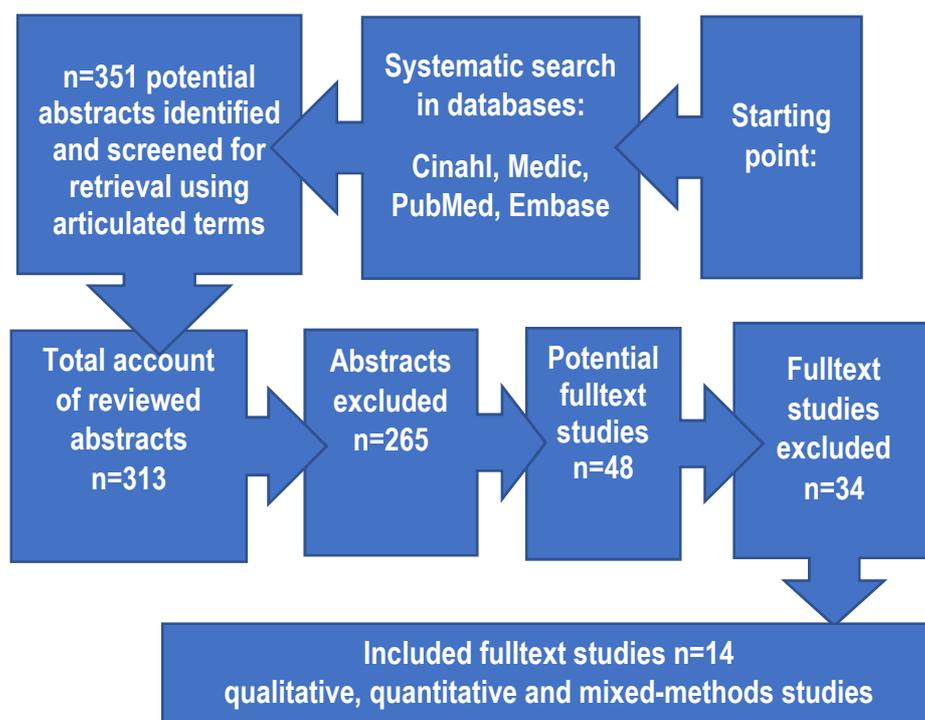
The significance of research ethics is stressed in content analyses because the ethical is highlighted in connection with the formulation of aim and research questions. Content analyses with narrative literature reviews as material have undergone ethical examination through other researchers' efforts at publication. This study follows research ethical guidelines, methods and recommendations throughout according to WMA (2013) and ICN (2012). Good research ethical practice strives for openness, equality, loyalty and honesty. This responsibility is manifested in the present study by respecting other researchers' work, choice of methodology, selection criteria and treatment of material.

## Results

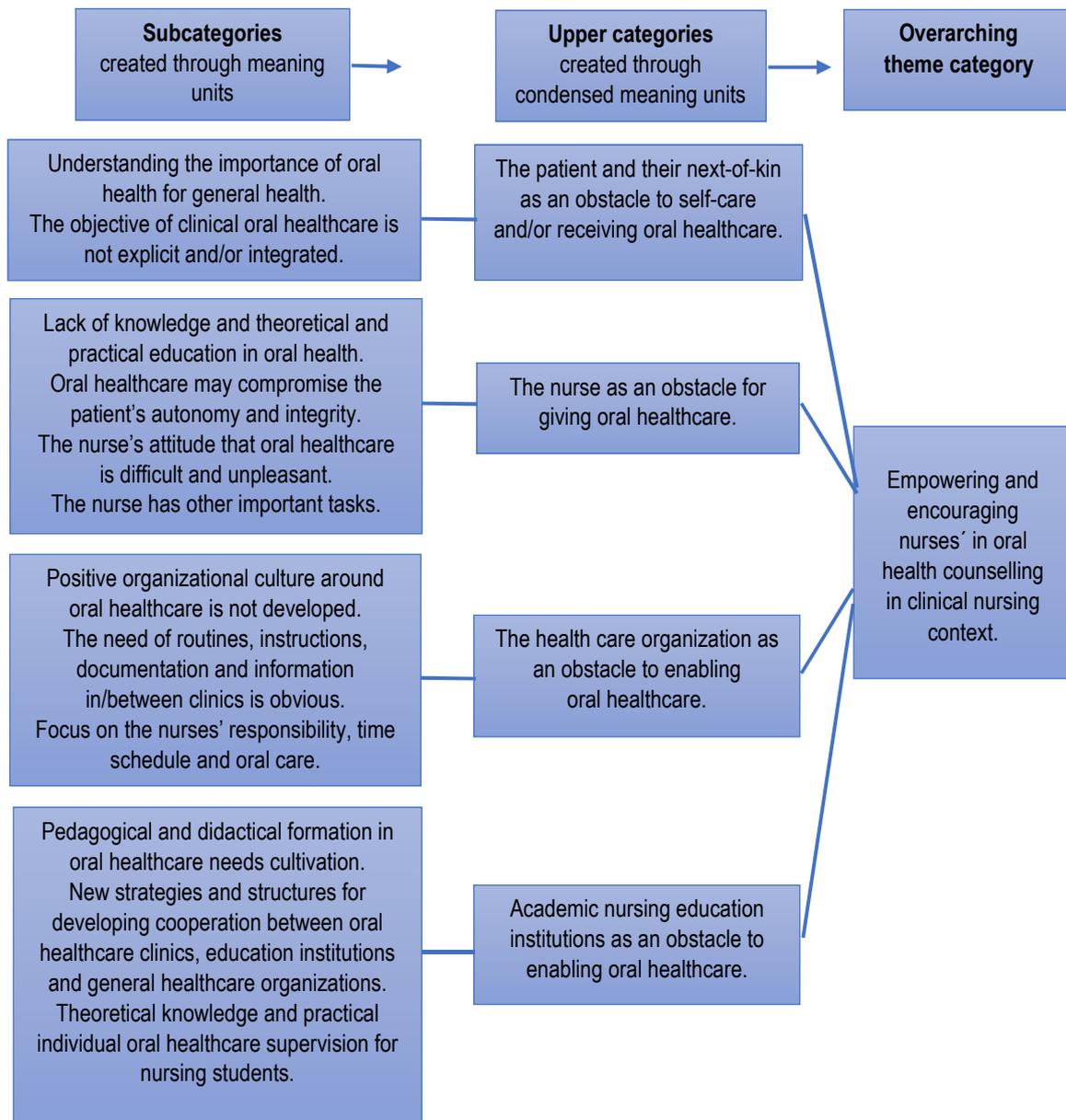
Nurses are aware of that the promotion of good oral health is important for both the individual and society, though they struggle with oral care tasks in clinical nursing (De Visschere et al. 2011). The task of healthcare is to take care of the citizens in society and ensure integrated good care and health for all. Oral health is one of the most important public health issues in the world because it affects a number of somatic conditions. The promotion of the importance of oral care and oral health is stressed in each age group: self-care is cost-effective, preventive, easy and simple and represents a way to increase well-being and decrease human suffering (Kullberg 2009; 2011; Garry & Boran 2017).

The studies show that nurses lack evidence-based knowledge related to oral care and skills to perform oral health care. There is absence of knowledge of the importance of oral health in general health care, which means that nurses have difficulties to support other health care employees in questions around oral health in clinical nursing setting. Nurses have the responsibility to utilize knowledge and experience to complement each other's competencies.

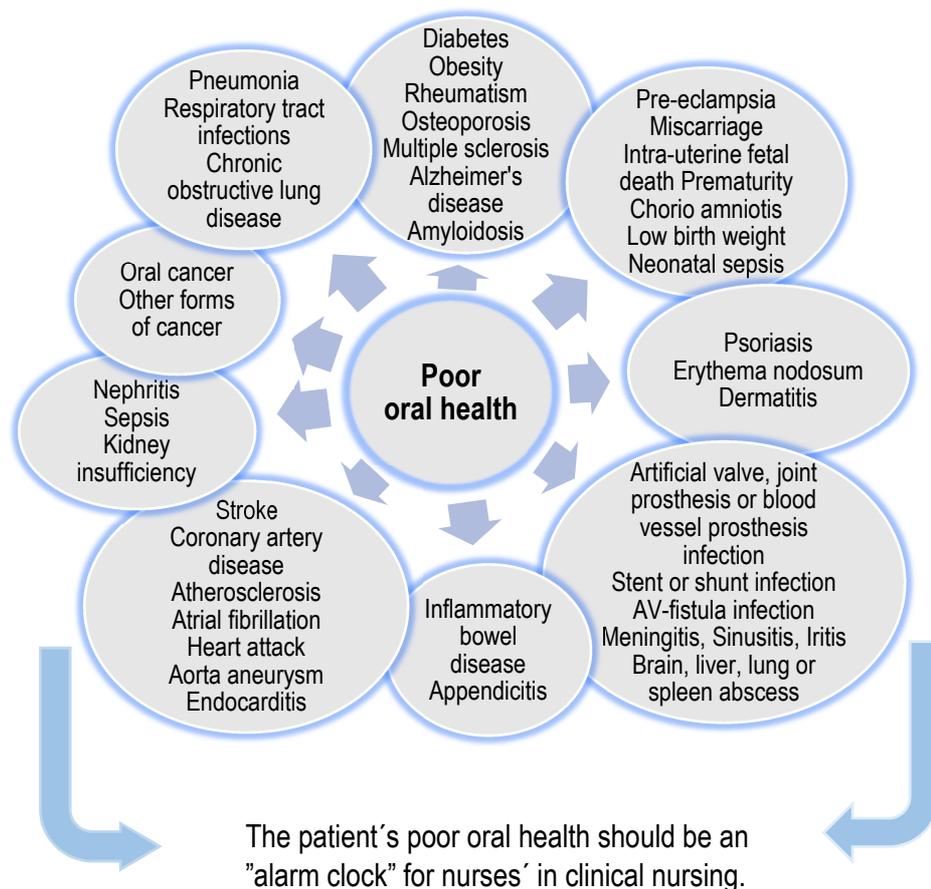
The evidence-based knowledge is connected to, for example, risk factors of poor oral hygiene and oral illnesses. These factors include impaired production and changes in the composition of saliva and a generally diminished immune system (Bassim 2008; Costello & Coyne 2008; Desvarieux 2013; El-Solh 2011). It is essential for nurses to understand that oral infections are often chronic and symptomless. The biofilm which consists of layers of bacteria on the surface of the teeth and the gingiva causes caries and gingivitis which, without proper oral care, can develop into parodontitis. This bacterial oral infection invites microbes and toxins to the human bloodstream which gradually affects general health. The connection between chronic somatic illnesses and poor oral health is clear as a result of various mechanisms of infection (Bersell 2017; Desvarieux 2013; El-Solh 2011; Wretlind & Gahnberg 2017; Wårdh et al. 2000). Patients' age and social status correlate with research statistics from studies on oral care: several older hospitalized patients in healthcare organizations suffer from poor oral health. Good oral health affects hospitalized patients' physical well-being, speedy recovery and prevents complications from surgery (Bernabé et al. 2009; Lin et al. 2011; Sonde et al. 2010).



**Figure 1. Flow chart of the study selection procedure of original studies and their quality assessment**



**Figure 2. Levels of abstraction. The abstraction movement starts from the closeness to the text in the research material and manifests the content. The movement continues towards a higher abstraction level and reflects the meaning-bearing components of the text.**



**Figure 3. The consequences of poor oral health conducted by the evidence of the literature: Somatic, systematic diseases and illnesses that have a causal linkage to poor oral health.**

Parodontitis has causal connection with pregnancy complications including prematurity, pre-eclampsia and low birth weight since microbes and toxins pass through the placental barrier and influence the development of the fetus. Pregnancy affects the composition of saliva already during the first trimester, which increases the risk for oral infections (Wiener & Waters 2018). Parodontitis can be present in patients that suffer from heart and kidney diseases, diabetes mellitus, metabolic syndrome, rheumatism, arteriosclerosis, Alzheimer's disease and different forms of cancer (Bersell 2017; Desvarieux 2013; El-Solh 2011; Lin et al. 2011; Wretling & Gahnberg 2017; Wårdh et al. 2000). Parodontitis may possibly cause many other illnesses and infections which future research may show (Figure 3.).

Nurses' attitudes toward oral care are reflected through the nursing education and healthcare organizational culture to the quality of clinical

nursing and treatment that the patient receives: good oral care routines provide the incentive for service in nursing (Yanagisawa et al. 2018; Yoon & Steele 2012). It is justified that nurses monitor their own attitude since it can be transmitted to younger colleagues and nursing students. Documentation of patients' oral status and oral health is an important part of the nursing process. Nurses' limited knowledge of the importance of oral health for patients' general health and the distance to the practice of oral care can be linked to a deficient academic nursing education, healthcare organizational factors, nurses' attitudes, communication and the patients themselves (Forsell et al. 2011; Lindqvist et al. 2013; Mehl et al. 2016). Nurses need knowledge about the physiological functions of the mouth, practical procedures about how the patient's oral status and mouth are examined to prevent possible infections, tooth-brushing techniques as well as care of dentures, bridges and fixed

orthodontic instruments. It is common for poor oral hygiene to be integrated after the patient's oral status has deteriorated. Explanations as to why in-patient's oral health is integrated less in the nursing process are many. Healthcare organizations explain that staffing policy and lack of time are reasons that oral care is not integrated because the nurses' workload may be high or substitutes may be inexperienced. Nurses may find oral care efforts demanding and unpleasant. Due to healthcare organizational economic barriers it is common that nurses have a limited access to oral care education (Pihlajamäki et al. 2016; Samson et al. 2009). Research shows that this is factual also of necessary instruments for oral care, tools and equipment needed to identify the patient's problem. Nurses' caring science responsibility includes patients' oral hygiene, information about oral care, coordination and documentation of clinical oral care efforts (Suminski et al. 2017; Wårdh et al. 2012).

Patients and next-of-kin may sometimes be perceived as an obstacle. Abuse may occur when the nurses' and patients' horizons of understanding deviate from each other and it is difficult to find common ground. Various illness conditions may be expressed through confused behaviour. Patients may refuse to open their mouths and accept help, bite the toothbrush or perceive that nurses are difficult or demanding. Difficult situations call attention to the need to protect the autonomy and integrity of patients, and specifically their absolute dignity. Maintaining the balance between natural oral care and patient integrity is crucial and should be prioritized; it should never be experienced as a violation by the patients or their next-of-kin (Schwendicke et al. 2015; Sloane et al. 2013).

## Discussion

This study has aimed to deepen the understanding of the importance of oral health for general health and asked why nurses do not integrate patients' oral health within a clinical caring science context. Caring science has provided the study with a meaning-bearing humanistic perspective. The study has been conducted according to good scientific practice in all its various phases, which means that it is truthful, acceptable and reliable (Eriksson 2001; Honkavuo 2014). Validity criteria for qualitative studies were applied and the results were foregrounded through processing and a deepened analysis process. To ensure

validity it was crucial to consider the research process as a whole from the idea phase to results and to reflect on the significance of the results. Analytical precision emerges in the study which means the basic realization of the narrative literature review, content analysis and the clarification of concept connectivity (Polit & Beck 2013). The meaning-bearing substance, width and diversity of the study emerge through theoretical clarification. The study highlights research phenomena from a caring science perspective, opens up for the significance and application of deepened knowledge within clinical nursing about the importance for general health of oral health. Additionally, the study paves the way for applied systematic caring science research on oral health as well as the development of caring science itself.

The study describes the relationship between oral health and the human being's general health by showing the importance of oral health for general health and the causes for some twenty somatic illnesses. This study shows that oral infections may require intensive care and increase mortality risk (Bassim et al. 2008; Bernabé et al. 2009). The level of evidence according to causal linkages between poor oral health and somatic illnesses rises clearly from this study.

Good oral hygiene requires inter-professional efforts and well-established routines. Within a clinical nursing context, it is the nurse's moral duty to observe a patient's poor oral hygiene. Nurses' efforts are cost-effective and an important way of preventing difficult oral infections and somatic illnesses in society (Bersell 2017). The nurse's ethical task is to serve patients and protect their well-being, health and life. The patient's health and suffering is continuously opened up within a clinical context and is highlighted through various behavioural forms and somatic symptoms. It can be justified and creates confidence if the patient's next-of-kin is informed about the importance of oral care for the patient's general health in order to increase the understanding of the patient's situation.

It is clear that a number of today's patients have called attention to the importance of good oral health and consequently invested time and resources to be able to maintain health and a good oral status (Wretling & Gahnberg 2017). The trend is towards fewer toothless individuals. Advanced prosthetic constructs, such as jaw bone anchored implants and bridges, have become

more common while the proportion of removable prostheses decreases. It is crucial for the patients that nurses are aware of different kind of oral constructions and have knowledge how these need to be taken care in clinical nursing (Costello & Coyne 2008; Hilton et al. 2016; Jablonski et al. 2009).

Nursing education institutions have in recent years begun to recognize the existing challenge and complex problems that entail ensuring good oral health for patients in clinical nursing context. The knowledge of the combination of oral care and general health needs to be strengthened and this also applies to other health care professions. Oral care is rarely found in interdisciplinary undergraduate education to health care-related professions. This also despite the fact that patients' at a later stage of life become increasingly dependent on both health care and oral care services and that this work is increasingly becoming a concern for not only nurses but other health care professions as well (Mehl et al. 2016).

If patients' oral hygiene receives less focus during hospitalization it can affect the quality of life later on and result in unnecessary suffering. Impaired oral health at the release from the healthcare organization confirms that the patient's care needs have not been met or paid attention to. This does not correspond to either professional standpoints or scientific considerations or general research ethical codes, laws, instructions, norms and rules. It is crucial to highlight the search for caring science evidence that relates to patient oral health because a deeper understanding of the importance of good oral care for hospitalized patients also contributes to the improvement of healthcare organizational routines (Wårdh et al. 2000; 2003).

The study indicates that patient-centred care in clinical nursing context usually leads to improvements, even if the efforts are carried out and the results are measured in different ways. When it comes to a coordinated individual plan, oral health care has usually not been prioritized, but there is hope that the area will gradually get more attention.

### Conclusion

The study provides a focus on nurses' oral health interventions in clinical nursing, and the connection between poor oral care, oral infections and somatic diseases. The focus of oral

health–illness-connection was already shown in ancient Greece but the interest to research this causality was re-actualized in the Western world only a few decades ago. Promoting oral health is a common health value and involves the patient's autonomy and human dignity in the clinical nursing context.

The healing and integrative importance of oral health for the human being's general health is unarguable. The risk for somatic illnesses has a causal connection with poor oral health. Oral health status is part of the patient's illness narrative and is a natural part of the nursing process. Nurses' attitudes toward oral care are often reserved which can violate the autonomy and dignity of patients and cause them unnecessary suffering. Academic theoretical and clinical oral health education that leads to a deeper understanding is crucial. Oral health is significant for nursing and serving as well as for the development of caring science.

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