Knowledge, attitude and practices towards preventive dentistry amongst dental clinicians in Gauteng Department of Health

A thesis submitted in partial fulfillment of the requirements for the degree of MSc in Dental Public Health at the Faculty of Dentistry, University of the Western Cape

Supervisor: Professor Robert Barrie
Abstract

Knowledge, attitude and practices towards preventive dentistry amongst dental clinicians in Gauteng Department of Health

Background:
The Gauteng province is divided into 5 districts each of which have a public based oral health programme. Each district provides oral health treatments such as dental extractions with treatment of pain and sepsis, preventive dentistry, simple restorations, removable prosthodontics (complete and partial dentures) and minor oral surgery in selected facilities. The main treatment modality in most government based dental clinics is dental extractions (Department of Health, 2003). This indicates the poor status of the population’s teeth. Dental caries is a condition that can be prevented if adequate efforts are made to practice preventive dentistry. Preventive dentistry has been a treatment modality that has been practiced poorly or almost completely ignored in several oral health facilities for many years. This neglect could be due to several factors such as in adequate knowledge regarding preventive dentistry procedures, poor attitude towards preventive dentistry, lack of motivation, or lack of resources (Clark, 2011). The purpose of this study is to determine why preventive dentistry has been neglected for so many years.

Aims:
The aim of this study was to determine the knowledge, attitudes and practice of clinicians in the Gauteng Department of Health towards preventive dentistry.

Methodology:
A cross-sectional study was carried out amongst the dental clinicians of the Gauteng Department of Health. A self-administered questionnaire was used to gather information regarding the knowledge, attitude and practices of the dental clinicians. Results of summary statistics were displayed in the form of tables and graphs, including means and standard deviation. Chi-squared tests were done to determine if answers given were affected by gender, experience or type of profession. A list of the barriers faced was drawn up to assess which obstacles were more common than others.

Results:
Of the 168 clinicians, 79 agreed to participate in the study. The ages ranged from 23 to 58 years old. The majority were females (70.9%). The mean work experience of the participants was 16 years. A majority of the participants had adequate theoretical knowledge (68.4% pass rate) but only a small number of clinicians (30.4%) were able to apply this knowledge to predict the outcomes of a community oral health program. Knowledge was not affected by gender, profession and education (p>0.05). A significant difference in knowledge was found within the different districts (p<0.05). It was also found that knowledge had a significant but weak inverse relationship with age and experience (p<0.05). Participants were not fully aware of the proper use of topical fluoride as a preventive
treatment for caries. Participants had a positive attitude towards preventive dentistry, with an almost equal number of participants finding its practice to be easy (39.7%) as those who found it to be difficult (37.2%). Participants carried out preventive procedures such as giving patients Oral Health Instructions (OHI), performing diet counseling, applying fissure sealants and topical fluoride, scaling and polishing, and scheduling bi-annual checkups. No correlation was found between practice and knowledge, nor practice and attitude (p>0.05). Some of the common barriers identified were patients not keeping their appointments, lack of patient education, lack of patient motivation, broken equipment, lack of material, operators being overburdened, clinicians spending too much time doing dental extractions, and operator fatigue and stress.

Conclusions:
Dental clinicians within the Gauteng Department of Health are equipped with adequate knowledge to treat their patients and have favorable attitudes towards preventive dentistry. Dental clinicians practiced most of the preventive dentistry procedures with the exception of the placement of topical fluoride. There was no correlation found between the practice of preventive dentistry and knowledge or attitude towards it. It is therefore safe to say that preventive dentistry is negatively affected by several barriers to its practice. Should these barriers be addressed, it could greatly improve the practice of preventive dentistry.
Declaration

I, Rahisa Banu Shaikh (student no. 3614752), the undersigned, hereby declare that this dissertation is my own original work except where indicated in acknowledgements and references. It is being submitted in fulfillment for the degree (MSc) in Dental Public Health at the Faculty of Dentistry, University of the Western Cape. It has not been previously submitted in part or its entirety towards any other degree or examination at any other university.

Signature:  
Date: 05 November 2018
Dedication

I would like to dedicate this work to:

My beloved parents who have always supported me and encouraged me to reach for the stars and never settle for less.
I would like to acknowledge all those who have assisted me with completing my master’s dissertation.

I sincerely thank my supervisor Professor Robert Barrie for his guidance, support and encouragement throughout the process of developing this dissertation.

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I am grateful to all participants who took the time to partake in my study.

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Acronyms and Abbreviations

WRD – West Rand District
ART – Atraumatic restorative treatment
FTP – Fluoridated toothpaste
HPCSA – Health Professionals Council of South Africa
OHI – Oral hygiene instructions
NHRD – National Health Research Database
JHB – Johannesburg
HOD – Head of the Department
XLA – Dental extraction
DMFT – Decayed, missing or filled teeth
Chapter 1: Introduction

1.1 Introduction:

The West Rand District (WRD) is one of the 5 districts of Gauteng. It is situated on the South Western edge of Gauteng. The WRD Department of Oral Health consists of 10 clinics and 3 hospitals that are run by 20 dentists, 5 dental therapists and 5 oral hygienists - the clinics and hospitals provide services such as dental extractions with treatment of pain and sepsis, preventive dentistry, simple restorations, removable prosthodontics (complete and partial dentures) and minor oral surgery in selected facilities.

In terms of preventive dentistry, all clinics have an oral hygiene programme; patients are counseled about the importance of oral hygiene before treatment starts for the day. Scaling and polishing is done in most facilities. Fissure sealants, ART, diet counseling and placement of topical fluoride are done according to patient need.

In the previous years, preventive dentistry was neglected due to lack of functional equipment. However, in 2015 new dental chairs were installed in all facilities and curing lights were provided to clinics that did not have them. There seems to have been an improvement in the practice of preventive dentistry, however, there are still certain clinics where preventive dentistry is neglected.

There are several issues that can cause poor work performance. Lack of knowledge and skill can inhibit an individual from performing a task or result in an individual performing the task incorrectly (Clark, 2011). In the oral health setting a dental professional who does not understand the importance of preventive dentistry may avoid the task completely or perform the different procedures (fissure sealants, scaling, and other procedures) incorrectly.

There may be instances when the individual has all the necessary knowledge and material to perform the task but the process of the task or an external factor causes a delay in or hinders proper performance (Clark, 2011). In the oral health context this can be attributed to patient factors. A dental clinician may have all the necessary knowledge, skills and material to perform a preventive dentistry procedure but the procedure cannot be carried out if patients do not keep their appointments or present to the clinic at a very late stage when an extraction is the only possible treatment option.

Another issue that can cause poor work performance is lack of resources (Clark, 2011). In the oral health setting this will be because there is a lack of material (fissure sealant, topical fluoride) or non-functional equipment (no curing light, broken scaling machine, non-functional suction).

Lastly, but most importantly, an individual’s attitude and motivation to perform a particular task may result in poor work performance (Clark, 2011). A dental clinician may have the necessary knowledge, skills and materials but will avoid performing the task due to there being no desire to achieve the goal.

This study’s aim was to determine what factors are limiting the practice of preventive dentistry in the WRD and to determine if similar problems are faced in Gauteng as a whole. The other four districts of Gauteng include Johannesburg Metro, Ekurhuleni District, Sedibeng District and Tshwane District.

http://etd.uwc.ac.za/
The Gauteng Department of Oral Health has 164 clinics, 138 dentists, 30 dental therapists and 35 oral hygienists in total.

1.2 Problem Statement:

The main treatment modality in most government based dental clinics is dental extractions (Department of Health, 2003). This indicates the poor status of the population’s teeth. Recent studies have shown that oral health is linked to a person’s general wellbeing, emphasizing the need to control dental related illnesses and problems. According to a report written by the International Dental Federation (FDI; 2014), poor oral health may cause malnutrition due to inability to chew, dental infections may cause increased risk of pneumonia, patients with periodontal disease may have difficulty controlling their blood sugar levels, oral bacteria may cause infective endocarditis, and periodontal disease has been associated with low birth-weight babies (FDI World Dental Federation, 2014).

On the other hand, prevention is always better than cure. “Preventive dentistry is the practice of caring for your teeth to keep them healthy. This helps to avoid cavities, gum disease, enamel wear, and more” (Stubblefield, 2014). Both young and older patients benefit from preventive dentistry; newly formed teeth are protected in the young preventing tooth decay and/or early tooth loss, while elderly patients can hold onto their teeth for longer periods of time, preventing the need for rehabilitation and preventing difficulties in chewing and speaking.

Dentists play a vital role in the prevention of oral disease. They are an important source of knowledge to patients, and their attitudes towards preventive dentistry may affect the view of their patients.

1.3 Justification For The Study:

There is very limited information available regarding dentists’ attitudes towards preventive dentistry. This topic has not been addressed within South Africa. The results obtained from the study will help to highlight issues at grass-roots level that may have been over-looked and need to be addressed. The results from this study may also be used as a reference in future studies of this kind or as a baseline when trying to implement new oral health programmes.
Chapter 2: Literature Review

2.1 What is Preventive Dentistry:

Preventive dentistry is the practice of dentistry that focuses on procedures that ensure dental disease does not occur or does not progress to a more severe form. Preventive dentistry is made up of two aspects of care, in office care performed by the dentist and at home oral health care (Blinkhorn, 1993).

2.2 In Office Care:

Dental clinicians will look for early signs of periodontal disease, dental caries and changes in soft tissue. In office procedures that may be performed by a dental clinician include oral hygiene education, the placement of fissure sealants, the use of topical fluoride, scale and polish, and root planing.

Preventive care can help to reduce the caries burden in South Africa. A meta-analysis of seven studies on fissure sealants found that caries reductions ranged from 87% at 12 months to 60% at 48-54 months to 50% at 9 years, relative to those that had not received sealants (Ahovuo-Saloranta, et al., 2008). A meta-analysis was done on 133 studies on topical fluoride application (fluoride toothpaste, mouth rinses, gels and varnishes). The analysis found that topical fluorides are beneficial in preventing caries in children from ages 5 to 16 years (Marinho, et al., 2003). Furthermore, scaling and root planing are associated with a decrease in the risk for cardiovascular events and chronic obstructive pulmonary disease (Chen, et al., 2012).

2.3 At Home Care:

There are several important at home oral health care practices that can be implemented to help prevent dental caries and gingivitis. Patients are advised to brush their teeth twice a day with fluoridated toothpaste for not more than 2 minutes at a time. Patients are also advised to perform interdental cleaning in the form of flossing. A diet low in sugar is also essential to keep dental caries at bay. Finally patients are advised to visit their dentists regularly for checkups and oral health upkeep (American Dental Association, 2018).

2.4 Knowledge, Attitude and Practice towards Preventive Dentistry:

Proper dental care begins with dental professionals and their ability to help patients prevent dental problems. Work performance can be related to attitude and knowledge. Having a poor attitude of one’s work or lack of knowledge may result in an individual performing poorly in a specific field or avoiding that field completely (Clark, 2011). Several studies have been conducted in different countries to determine dental professionals’ attitude and knowledge towards preventive dentistry. The information was collected in the form of a questionnaire which covered several topics from caries formation and sugar consumption to topical fluoride treatment and screening for oral cancer.
A study in Iran, amongst 980 dentists (64% male), to evaluate their attitudes towards preventive dentistry and to determine their level of knowledge regarding the subject, found that only 31% of participants showed very high positive attitude towards preventive dentistry, while 47% showed medium level and 22% a low level of positive attitudes. From amongst the women 39% had a high positive attitude towards preventive dentistry, while only 27% of all men viewed preventive dentistry as important. Participants had the most accurate knowledge about the effect of sugar consumption and the role of fissure sealants on the progression of caries. The least accurate knowledge was regarding the importance of fluoride toothpaste (FTP) over brushing technique in the prevention of dental caries (Ghasemi, et al., 2007).

A similar study amongst dentists in Nairobi in 2013 found that the majority (64.2%) of the participants had positive attitudes towards preventive dentistry. Most participants (53.9%) were aware of preventive dentistry practices (the use of fissure sealants, the effect of sugar on dental caries, and the use of topical fluoride in dental dentifrices). However, like in the Iranian study, the majority of the dentists underestimated the importance of FTP in preventing caries in comparison to the brushing technique (Nthenya, 2013).

Another study in Vadodara, India, amongst private dental practitioners, in which 82 of 140 practitioners responded to the questionnaire, found that knowledge was higher amongst practitioners who had less experience compared to those who had more experience. 48.8% of practitioners had a highly favorable attitude towards preventive dentistry. 86.6% of dentists administered oral hygiene instructions to their patients, 80.5% gave anti-tobacco advice, while 43.9% gave dietary advice. Fluoride treatment, placement of fissure sealants and screening for oral cancer was done on a risk basis by most dentists. A majority of dentists felt that patient-related barriers hindered preventive dentistry the most. The study found no correlation between knowledge and attitudes towards prevention (Ramya, et al., 2015).

Third, fourth and fifth year Mongolian dental students were surveyed in 2000 and 2002 regarding their knowledge and practice of preventive dentistry. The study found that diet counseling and recommending the use of FTP were the most commonly used preventive measures amongst the students in both 2000 and 2002. In 2000, the fifth year students reported placing more fissure sealants than the third and fourth year students of that year. The same was found in 2002, where the fifth year students reported a higher use of topical fluoride in patients than the third and fourth year students of that year. The study compared the preventive dentistry practices of both fifth years to their respective third year practices and found that their practices improved significantly. The students’ preventive dentistry practice was strongly correlated to their knowledge and self-reported competency. Comparing the third, fourth and fifth years of 2000 to their counterparts in 2002, it was found that their knowledge on preventive dentistry was similar. In 2002, 42% of the students scored within the highest quartile, while in 2002 48% of the students had scores in the highest quartile for knowledge on preventive dentistry (Tseveenjav, 2004).

This study was also carried out amongst 245 qualified dentists, 51% of whom were found to be in the highest quartile of scores for knowledge of preventive dentistry. Like the other studies, most students and dentists were aware that FTP can prevent tooth decay but were unaware that the use of FTP was
more important than the brushing technique. The students and dentists were also unaware of the benefit of fluoridated water and topical fluoride (Tseveenjav, 2004).

In 2013 a survey was conducted amongst 218 lecturers in 4 dental colleges in Bangalore. Participants had the most accurate knowledge regarding the role of sugar consumption on caries, and the importance of fissure sealants and water fluoridation in preventing caries. The least accurate knowledge was regarding the importance of FTP over brushing technique in the prevention of dental caries, and the fact that using a sharp explorer when examining an early carious lesion will damage enamel rods. The majority of participants were aware of the importance of early diagnosis of oral cancer, oral cancer screening, and could identify risk factors, but were unaware that oral cancer more commonly occurs amongst elderly patients. The majority of participants were knowledgeable about the use of space maintainers when caring for deciduous teeth and the risk factors that caused malocclusion. When comparing overall knowledge, participants considered prevention of malocclusion to be most important, followed by oral cancer and periodontal disease. The poorest knowledge was seen for the prevention of caries. No differences were found with respect to gender, Academic department, or years of experience (Ahuja, et al., 2014).

All of the above studies were carried out by means of a questionnaire. A variety of different statements on the prevention of dental caries and periodontal disease, as well as screening for oral cancer and malocclusion, were used to assess knowledge. Each statement had a 5-point Lickert-scale to choose from, ranging from “fully agree” to “fully disagree”. The semantic differential method was used to assess attitude. Between five to nine bipolar adjectives were used to describe preventive dentistry. Respondents were asked to describe their attitude towards each aspect by choosing one option from a Likert-scale ranging from 1 to 7. Simple yes and no questions were used to determine which procedures were carried out amongst the dental clinicians.

The Lickert scale is universally used in questionnaires and easily understood. While the scale accommodates for neutral or undecided feelings of the respondents, people can sometimes avoid choosing the extreme on the scale (fully agree / fully disagree) due to the negative implications that can be associated with “extremism”. It is also not always easily quantifiable; the space between each choice may not always be the same, giving one choice more value than the other (LaMarca, 2011).

The semantic differential scale is a visual scale that is easily understood and can therefore offer reliable feedback. However, identifying the correct number of points on the scale is not always easy; too few points may not capture the emotional range felt by the respondent, while too many points may seek information that is not there (Talikoti, 2015).

From the above studies it can be seen that dentists are generally knowledgeable and have positive attitudes towards preventive dentistry; however, there are deficiencies in their knowledge. While a few studies have been conducted on this topic, this issue has not been addressed in South Africa. It will be interesting to see how the clinicians of Gauteng compare to the results from other studies.

With regards to barriers that may affect dental practice, a study was conducted in the Western Cape to determine obstacles that affected public dental practice. The study found that less than a third of the dental clinics provided the basic oral health package and less than two thirds were offering dental
extractions. Only 43% of clinics were able to offer scale and polish while fissure sealants were only placed at 37% of the clinics. A large portion of the day was dedicated to dental extractions; the main complaint of patients was that of pain and sepsis making dental extractions a large portion of the dental treatment that was provided. Patients also demanded extractions instead of restorations. Time constraints due to high patient load also limited the variety of dental care provided. Lack of availability of the basic oral health care package was also due to poor repair and replacement of dental equipment, with repair time taking as long as 3 weeks, and equipment replacement taking as long as 7 months. Other obstacles included the lack of a chair light, suction and dental materials, with some patients being attended to on a regular plastic chair (Smit & Osman, 2017). It will be interesting to see how obstacles in public dental practice in Gauteng compare to the obstacles in the Western Cape.
Chapter 3: Aims and Objectives

3.1 Aim:
The aim of this study was to determine the knowledge, attitudes and practice of clinicians in the Gauteng Department of Health towards preventive dentistry.

3.2 Objectives:
The objectives were:

• To determine dentists/dental therapists knowledge and attitude towards preventive dentistry.

• To determine what preventive dentistry practices are carried out by dentists/dental therapists in Gauteng Department of Health.

• To determine what barriers/obstacles are faced when practicing preventive dentistry.
Chapter 4: Methodology

4.1 Study Area and Type:
This study was carried out amongst the dental clinicians (dentists and dental therapists) of the Gauteng Department of Health. It was a cross-sectional study.

4.2 Study Population:
Considering the possibility that not all clinicians would respond to the questionnaire all 138 dentists and 30 dental therapists in the department were targeted.

Anyone who did not give consent or who was not registered with the HPCSA was excluded from the study. The researcher as well as oral hygienists and community service dentists were excluded from the study.

A list of oral health care facilities within each district was obtained from the HOD of each department and their dental clinicians were contacted for the research accordingly.

4.3 Data Collection Tool:
Data was collected using a self-administered questionnaire (Appendix 3). The questionnaire used in this study was adapted from a study done by Ghasemi, et al., (2007) and Ahuja et al., (2014) and modified according to the objectives outlined above. The questionnaire consisted of 21 closed ended questions. Section 7 was an open ended question.

The questionnaire had 7 different sections.

Section 1 consisted of an introduction to the study and its aims and objectives as well as informed consent.

Section 2 consisted of questions to determine demographic information.

Section 3 consisted of a list of questions (Questions 1 to 8) to determine the clinician’s level of knowledge on preventive dentistry.

Section 4 consisted of questions (Question 9a to 9b) to determine the clinician’s attitude towards preventive dentistry.

Section 5 consisted of questions (Questions 10 to 15) to determine preventive dentistry procedures that the clinicians actually carried out.

Sections 6 consisted of questions (Question 16 and 17a to 17c) to determine the clinician’s ability to apply his/her knowledge to develop a community oral health programme.
Section 7 entailed an open ended question where clinicians could explain barriers and difficulties faced that could have caused them to neglect preventive dentistry.

4.4 Research Procedure:

A self-administered questionnaire was handed out to 138 dentists and 30 dental therapists in the Gauteng Department of Oral Health. All questionnaires were placed in an envelope. The participants were instructed to fill out the questionnaire alone and then place the questionnaire back into the envelope and seal it. The completed questionnaires were then collected from the clinics, data was analyzed and results were drawn up accordingly.

Information was provided to all participants using a standard Information Sheet (Appendix 1). Consent was obtained from the participants prior to data collection. The signed consent forms (Appendix 2) were returned to the investigator in a sealed envelope, and were separated from the returned questionnaires to maintain anonymity.

Participation in the study was voluntary and no penalty was incurred by non-participants.

4.5 Study Timeline:

The following study timeline was followed:

*January to June 2017:* This period was used to receive ethical approval from the Biomedical Research Ethics Committee at the University of Western Cape (Appendix 4).

*July to November 2017:* This period was used to receive approval for study from the Gauteng Department of Oral Health as well as the other respective HODs from each district in Gauteng. Approval letters were obtained from each district before the research was carried out (Appendices 5-9).

*December 2017 to May 2018:* This period was used to collect completed surveys from all the oral health clinics in the province of Gauteng.

*June to August 2018:* This period was used to analyze all available data and draw up results.

*September and October 2018:* This period was used to write up the final dissertation.

*November 2018:* Submission of final thesis to the University of Western Cape.
4.6 Data Analysis:

The questionnaires were marked and scored as follows:

4.6.1 Questions 1 to 8:

Each correct answer was given a score of 1. The pass mark for this question was 4/8 (50%). Any person who received a score of 3 or less failed this section. Each participant had their scores calculated to determine if the knowledge section was passed or not. These scores were also used to determine average marks for each district, each profession (dentist vs. dental therapist), level of education (under graduate vs. post graduate) and for gender.

4.6.2 Question 9a to 9c:

A Likert scale was used to determine participants’ attitudes towards preventive dentistry. A score of 4 and 5 was regarded to be a positive attitude towards preventive dentistry, while a score of 1 and 2 was regarded to be a negative attitude towards preventive dentistry (Question 9a and 9b). A score of 1 and 2 was used to indicate ease of practice, while a score of 4 and 5 was used to indicate difficulty in practice (Question 9c). The mode of each question was used to determine participant’s attitudes.

4.6.3 Question 10 to 15:

Participants were asked to indicate which preventive dentistry procedures they carried out by ticking the respective boxes. The total for each procedure was calculated to determine which procedures were the most common and which procedures were neglected or not practiced as much.

4.6.4 Questions 16 and 17a to 17c:

Participants were allocated 1 mark for getting the DMFT scores correct (Question 16). This mark was then used to determine how many participants were aware of the caries burden of these children.

For Question 17a to 17c participants were allocated 1 mark if their answers were in the same ball park as the literature:

17a 30%-50%
17b 40%-60%
17c 30%-50%

Participants needed to get 2 out of 3 questions correct to pass this section. These scores were also used to determine if there was a difference in the application abilities of females vs. males, and to see if there was a difference between the districts. The district scores for Question 17 (17a to c) were
compared against the scores of Questions 1 to 8 to see if participants could apply the textbook knowledge that they had.

4.6.5 Presentation of Results:
Results of summary statistics were displayed in the form of tables and graphs, including means and standard deviation, independent sample t-Test and, or, one way ANOVA, where applicable. Chi-squared tests were done to determine if there was a statistically significant difference in the answers received from the different districts. Chi-squared tests were also used to determine if answers given were associated to gender, experience or type of profession. A list of the types of obstacles faced when conducting preventive dentistry was drawn up to identify common themes.

4.7 Ethical Consideration:
The study protocol was presented to the Biomedical Research Ethics committee of the University of Western Cape. Approval was granted from the University and an ethical clearance certificate was obtained (Appendix 4). The study protocol was then handed in to the NHRD and presented to each district’s ethics committee. Ethical clearance was granted and a study acceptance letter was drafted by each district (Appendix 5-9).

Participation in the study was voluntary, anonymous and confidential, and the participants were allowed to withdraw from the study at any stage, without any penalties. Informed consent was obtained from each participant in the form of signed consent forms (Appendices 1 and 2). Consent forms were kept separate from answered questionnaires to maintain confidentiality.
Chapter 5: Results

5.1 Social Demographic Characteristics:

All the dentists as well as dental therapists from the Gauteng Department of Oral Health were invited to participate in this study. From a total 168 clinicians, 79 individuals agreed to participate in the study, with the greatest response coming from the West Rand District (91% response rate) and the poorest response coming from Johannesburg Metro District (22% response rate) (Table 1).

<table>
<thead>
<tr>
<th>District name</th>
<th>Total clinicians per district (n)</th>
<th>Study participants per district (n)</th>
<th>Response Rate per District (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ekurhuleni District</td>
<td>37</td>
<td>12</td>
<td>32</td>
</tr>
<tr>
<td>Johannesburg Metro</td>
<td>51</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Sedibeng District</td>
<td>19</td>
<td>14</td>
<td>74</td>
</tr>
<tr>
<td>Tshwane District</td>
<td>39</td>
<td>22</td>
<td>56</td>
</tr>
<tr>
<td>West Rand District</td>
<td>22</td>
<td>20</td>
<td>91</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>168</strong></td>
<td><strong>79</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Table 1: Response rate per district in Gauteng

Of the 79 participants, 72 individuals were dentists, while the remaining 7 were dental therapists. Of the 72 dentists, 48 had undergraduate degrees, while 18 had postgraduate degrees. All 7 dental therapists had undergraduate degrees. Six individuals did not specify their level of education. Females made up majority of the participants (70.9%), with males in the minority with 27.8%. One participant did not specify his/her gender (Table 2).

<table>
<thead>
<tr>
<th>District Name</th>
<th>Dentist</th>
<th>Dental therapist</th>
<th>Total</th>
<th>Female</th>
<th>Male</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ekurhuleni District</td>
<td>10</td>
<td>2</td>
<td>12</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Johannesburg Metro</td>
<td>11</td>
<td>0</td>
<td>11</td>
<td>8</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Sedibeng District</td>
<td>12</td>
<td>2</td>
<td>14</td>
<td>10</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Tshwane District</td>
<td>22</td>
<td>0</td>
<td>22</td>
<td>13</td>
<td>8</td>
<td>21</td>
</tr>
<tr>
<td>West Rand District</td>
<td>17</td>
<td>3</td>
<td>20</td>
<td>15</td>
<td>5</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>72</strong></td>
<td><strong>7</strong></td>
<td><strong>79</strong></td>
<td><strong>56</strong></td>
<td><strong>22</strong></td>
<td><strong>78</strong></td>
</tr>
</tbody>
</table>

Table 2: Frequency distribution of participants per district by profession and gender
The mean age of the participants was 36.6 years old, with the youngest participant being 23 years old and the oldest participant being 58 years old. A majority of the participants were between the ages of 31 to 35 years of age (25%) (Figure 1).

![Age distribution (yrs)](http://etd.uwc.ac.za/)

**Figure 1: Distribution of participants by age group (yrs)**

The table below indicates the age range distribution within each district (Table 3). Three individuals did not specify their age.

<table>
<thead>
<tr>
<th>Age Range (yrs)</th>
<th>West rand district</th>
<th>Ekurhuleni District</th>
<th>Johannesburg Metro</th>
<th>Sedibeng District</th>
<th>Tshwane District</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 – 25</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>26 – 30</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>31 – 35</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>36 – 40</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>41 – 45</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>46 – 50</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>≥51</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>19</strong></td>
<td><strong>11</strong></td>
<td><strong>11</strong></td>
<td><strong>14</strong></td>
<td><strong>21</strong></td>
</tr>
</tbody>
</table>

**Table 3: Frequency distribution of participant age per district (yrs)**

The mean work experience of the participants was 16 years, with the minimum experience period being 0.25 years and the maximum experience being 29 years. A majority of the participants had 6 to
10 years of experience (37%), while only 6% of participants had more than 20 years of experience. Four participants did not specify their working experience (Figure 2).

![Years of experience](http://etd.uwc.ac.za/)

**Figure 2: Distribution of participants per experience group (yrs)**

5.2 Knowledge Pertaining to Preventive Dentistry (Theoretical Knowledge) - Question 1 to 8:

This section tested the participants' textbook knowledge. When the questions were analyzed individually it was found that the most commonly correctly answered question was Question 2 with a pass rate of 96.2% followed by Question 5 with a pass rate of 86.1% (Table 4).

The most commonly incorrect question was Question 4 with a failure rate of 62% followed by Question 1 with a failure rate of 55.7%.
<table>
<thead>
<tr>
<th>Question number</th>
<th>Question</th>
<th>Pass rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Examining a newly erupted tooth with a sharp explorer will damage enamel rods.</td>
<td>44.3</td>
</tr>
<tr>
<td>2</td>
<td>Frequency of sugar consumption plays a greater role in producing caries than does the total amount of sugar consumed.</td>
<td>96.2</td>
</tr>
<tr>
<td>3</td>
<td>Normal salivary flow for un-stimulated saliva is 0.3 - 0.4 ml per minute.</td>
<td>67.1</td>
</tr>
<tr>
<td>4</td>
<td>Rinsing the mouth after tooth brushing will decrease the effect of fluoride in the toothpaste.</td>
<td>38.0</td>
</tr>
<tr>
<td>5</td>
<td>Candida infection of the oro-pharynx is indicative of low CD4+ counts in HIV+ patients.</td>
<td>86.1</td>
</tr>
<tr>
<td>6</td>
<td>What is chlorhexidine mouth wash effective against?</td>
<td>60.8</td>
</tr>
<tr>
<td>7</td>
<td>Which antibiotic is not recommended for children under the age of 6?</td>
<td>84.8</td>
</tr>
<tr>
<td>8</td>
<td>What is the Stephan Curve used for?</td>
<td>65.8</td>
</tr>
</tbody>
</table>

**Table 4: Pass rate per question**

Questionnaires were marked and each correct answer was given a score of 1. Each participant had their scores calculated to determine if the knowledge section of the questionnaire was passed or not. 50% was regarded to be the pass mark.

The female participants received a mean score of 54.32 with a failure rate of 28.6% (< 50%), and a pass rate of 71.4% (≥50%). The male participants received a mean score of 49.24 with a failure rate of 40.9% (<50%), and a pass rate of 59.1% (≥50%) (Table 5).

Dentists had a mean mark of 53.24 with a 31.9% failure rate while dental therapists had a mean mark of 53.57 with a failure rate of 28.6% (2 out of 7 individuals).

Postgraduate participants had an 83.3% pass rate while undergraduate participants had a 67.3% pass rate.

When districts were compared against each other it was found that Johannesburg Metro had the highest pass rate (100%), while Tshwane District had the lowest pass rate (36.4%).

As shown in Table 5, there was a significant difference in the knowledge score in the districts (p<0.05). There was no significant difference in the knowledge scores of the participants according to gender, profession and education.

![University of the Western Cape logo](http://etd.uwc.ac.za/)
As shown in Table 6 below, knowledge showed a significant weak inverse relationship with age and years of experience (p<0.05); the older or the more experienced participants had less knowledge.

### Knowledge

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Correlation coefficient</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-0.329</td>
<td>0.004</td>
</tr>
<tr>
<td>Years of experience</td>
<td>-0.237</td>
<td>0.041</td>
</tr>
</tbody>
</table>

Table 6: Correlation between knowledge, age and years of experience
5.3 Preventive Strategy (Application Knowledge) - Question 16 and 17:

None of the participants knew what the DMFT of 12 year old children in their district was.

Question 17 (17a to 17c) tested participant’s abilities to apply their knowledge to a community oral health programme and predict its outcomes. Participants were asked to predict the outcomes of implementing a brushing programme (Q17a), fissure sealant programme (Q17b) and community water fluoridation (Q17c). A mark was allocated to each answer that was in the same ball park as the literature. A mark was allocated to each correct answer; participants needed to get 2 out of 3 questions correct to pass this section.

Question 17 was used to determine how capable clinicians are of applying the theoretical knowledge they have. Participants in each district who answered 2 out 3 questions correctly were calculated to determine the pass rate for each district.

This question had a 30.4% pass rate with only 24 people answering at least 2 questions correctly (Table 7).

<table>
<thead>
<tr>
<th>Question 17 (a to c)</th>
<th>Participants (n)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/3 questions correct</td>
<td>6</td>
<td>7.6</td>
</tr>
<tr>
<td>2/3 questions correct</td>
<td>18</td>
<td>22.8</td>
</tr>
<tr>
<td>1/3 questions correct</td>
<td>22</td>
<td>27.8</td>
</tr>
<tr>
<td>0/3 questions correct</td>
<td>33</td>
<td>41.8</td>
</tr>
</tbody>
</table>

Table 7: Pass and Failure marks for Question 17

When question 17 (17a to 17c) was analyzed in relation to gender it was found that females had a pass rate of 32.1% while the men had a pass rate of 22.7%. One participant did not specify his/her gender; 38 women and 17 men did not answer this question correctly (Table 8).

<table>
<thead>
<tr>
<th>Question 17 (a to c)</th>
<th>Female participants (n)</th>
<th>Pass and Failure rate</th>
<th>Male participants</th>
<th>Pass and Failure rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/3 questions correct</td>
<td>4</td>
<td>32.1% pass</td>
<td>1</td>
<td>22.7% pass</td>
</tr>
<tr>
<td>2/3 questions correct</td>
<td>14</td>
<td></td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>1/3 questions correct</td>
<td>15</td>
<td>67.9% fail</td>
<td>7</td>
<td>77.3% fail</td>
</tr>
<tr>
<td>0/3 questions correct</td>
<td>23</td>
<td></td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

Table 8: Pass and Failure marks for Question 17 according to gender

The district with the best application knowledge was Ekurhuleni District with a 41.7% pass rate followed by Sedibeng with a 35.7% pass rate. The district with the highest failure rate was West Rand.
District with an 80% failure rate followed by Johannesburg Metro with a failure rate of 72.7% (Table 9).

<table>
<thead>
<tr>
<th>District</th>
<th>Pass Rate (%)</th>
<th>Failure Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ekurhuleni District</td>
<td>41.7</td>
<td>58.3</td>
</tr>
<tr>
<td>Johannesburg Metro</td>
<td>27.3</td>
<td>72.7</td>
</tr>
<tr>
<td>Sedibeng District</td>
<td>35.7</td>
<td>64.3</td>
</tr>
<tr>
<td>Tshwane District</td>
<td>31.8</td>
<td>68.2</td>
</tr>
<tr>
<td>West Rand District</td>
<td>20.0</td>
<td>80.0</td>
</tr>
</tbody>
</table>

Table 9: Pass and Failure marks for Question 17 according to District

5.4 Attitude towards Preventive Dentistry – Question 9 (a to c):

A Likert scale was used to determine participants’ attitude towards preventive dentistry. A score of 4 and 5 was regarded to be a positive attitude towards preventive dentistry, while a score of 1 and 2 was regarded to be a negative attitude towards preventive dentistry (Question 9a and 9b). A score of 1 and 2 was used to indicate ease of practice, while a score of 4 and 5 was used to indicate difficulty in practice (Question 9c).

In general participants had good attitude towards preventive dentistry; they believed it was important and useful, however a substantial number of the participants found preventive dentistry to be hard to practice (the number of participants who found practice easy is almost equal to the number of participants who found it hard to practice – 39.7% vs. 37.2%) (Table 10).

<table>
<thead>
<tr>
<th>Question 9</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>9a: Usefulness of preventive dentistry</td>
<td>5</td>
</tr>
<tr>
<td>9b: Importance of preventive dentistry</td>
<td>5</td>
</tr>
<tr>
<td>9c: Easy to practice</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 10: Attitude to preventive dentistry

Table 11 indicates the percentage breakdown of the rating for Question 9 a to c.
As shown in Table 12, there was no significant difference in the mean attitude score between male and female participants (p>0.05).

When the relationship between attitude and level of education was analyzed, it was found that there was no significant difference in the mean attitude score between postgraduate and undergraduate clinicians (p>0.05) (Table 13).
As shown in Table 14 below, there was no significant difference in the mean attitude score between the professions of the participants (p>0.05).

<table>
<thead>
<tr>
<th>Question 9</th>
<th>Dentist</th>
<th>Dental therapist</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>9a: Usefulness of preventive dentistry</td>
<td>4.51</td>
<td>0.77</td>
<td>4.71</td>
</tr>
<tr>
<td>9b: Importance of preventive dentistry</td>
<td>4.54</td>
<td>0.83</td>
<td>4.71</td>
</tr>
<tr>
<td>9c: Easy to practice</td>
<td>3.1</td>
<td>1.53</td>
<td>3.29</td>
</tr>
</tbody>
</table>

Table 14: Attitude according to profession

As shown in Table 15, there was no significant difference in the mean attitude score between those who had an oral hygienist and those who did not have an oral hygienist (p>0.05).

<table>
<thead>
<tr>
<th>Question 9</th>
<th>Have Hygienist</th>
<th>No Hygienist</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>9a: Usefulness of preventive dentistry</td>
<td>4.62</td>
<td>0.7</td>
<td>4.44</td>
</tr>
<tr>
<td>9b: Importance of preventive dentistry</td>
<td>4.59</td>
<td>0.86</td>
<td>4.52</td>
</tr>
<tr>
<td>9c: Easy to practice</td>
<td>5</td>
<td></td>
<td>3.16</td>
</tr>
</tbody>
</table>

Table 15: Attitude according to presence of oral hygienist

There was no significant difference in the mean attitude score between the districts (p>0.05; Table 16).

<table>
<thead>
<tr>
<th>District</th>
<th>West rand</th>
<th>Tshwane</th>
<th>Sedibeng</th>
<th>Johannesburg</th>
<th>Ekurhuleni</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>9a: Usefulness of preventive dentistry</td>
<td>4.40</td>
<td>0.88</td>
<td>4.62</td>
<td>0.67</td>
<td>4.71</td>
<td>0.47</td>
</tr>
<tr>
<td>9b: Importance of preventive dentistry</td>
<td>4.35</td>
<td>1.14</td>
<td>4.7</td>
<td>0.47</td>
<td>4.79</td>
<td>0.43</td>
</tr>
<tr>
<td>9c: Easy to practice</td>
<td>2.95</td>
<td>1.67</td>
<td>3.19</td>
<td>1.63</td>
<td>2.86</td>
<td>1.46</td>
</tr>
</tbody>
</table>

Table 16: Attitude according to district
5.5 Practice of Preventive Dentistry:

Participants were asked to indicate what preventive procedures they carried out. Frequencies of procedures can be found in the table below (Table 17).

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Always n(%)</th>
<th>Usually n(%)</th>
<th>Sometimes n(%)</th>
<th>Never n(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral hygiene instructions</td>
<td>57 (73.1%)</td>
<td>17 (21.8%)</td>
<td>4 (5.1%)</td>
<td>-</td>
</tr>
<tr>
<td>Diet counseling</td>
<td>31 (40.3%)</td>
<td>21 (27.3%)</td>
<td>22 (28.6%)</td>
<td>3 (3.8%)</td>
</tr>
<tr>
<td>Topical fluoride</td>
<td>13 (17.1%)</td>
<td>19 (25.0%)</td>
<td>26 (34.2%)</td>
<td>18 (23.7%)</td>
</tr>
<tr>
<td>Fissure sealants</td>
<td>29 (37.2%)</td>
<td>37 (47.4%)</td>
<td>10 (12.8%)</td>
<td>2 (2.6%)</td>
</tr>
<tr>
<td>Scaling and polishing</td>
<td>42 (55.3%)</td>
<td>31 (40.8%)</td>
<td>3 (3.9%)</td>
<td>-</td>
</tr>
<tr>
<td>Check ups</td>
<td>28 (36.8%)</td>
<td>24 (31.6%)</td>
<td>17 (22.4%)</td>
<td>7 (9.2%)</td>
</tr>
</tbody>
</table>

Table 17: Frequency of procedures

The figure below (figure 3) shows a graphic representation of procedure frequencies. From the figure it can be seen that oral hygiene instructions was the most commonly practiced procedure, while placement of topical fluoride was the most neglected procedure.
The figures below indicate the frequency of procedures with in the different districts. West Rand District, Ekurhuleni District, Sedibeng District as well as Johannesburg Metro had similar practice patterns, with the most common procedure amongst them being the giving of oral hygiene instructions, and the most neglected procedure being the use of topical fluoride. The most common procedure in Tshwane District was giving oral hygiene instructions, while the most neglected procedure was diet counseling (Figure 4 to 8).

Figure 3: Graphical representation of procedure frequencies (%)

Figure 4: Procedure frequencies for Ekurhuleni District (%)
Figure 5: Procedure frequencies for Johannesburg Metro (%)

Figure 6: Procedure frequencies for Sedibeng District (%)
Figure 7: Procedure frequencies for Tshwane District (%)
5.6 Correlations between Demographics, Knowledge, Attitude and Practice:

As seen from the table below, the only correlations found from the data is that the knowledge score showed a significant weak inverse relationship with age and years of experience (p<0.05). There was no significant correlation between socio-demographic characteristics, attitude and practice (p>0.05) (Table 18).

---

**Figure 8: Procedure frequencies for West Rand District (%)**

![Figure 8: Procedure frequencies for West Rand District (%)](image-url)
Table 18: Correlations between demographics, knowledge, attitude and practice – Pearson’s correlation co-efficient (p – value)

<table>
<thead>
<tr>
<th></th>
<th>Knowledge</th>
<th>Attitude</th>
<th>Practice</th>
<th>Age</th>
<th>Years of experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td>0.02 (0.84)</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practice</td>
<td>0.02(0.85)</td>
<td>0.073(0.55)</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.33(0.00)</td>
<td>0.085(0.47)</td>
<td>0.033(0.79)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Years of experience</td>
<td>-0.24(0.04)</td>
<td>0.188(0.11)</td>
<td>-0.084(0.49)</td>
<td>0.846 (0.00)</td>
<td>1</td>
</tr>
</tbody>
</table>

5.7 Barriers affecting Practice of Preventive Dentistry:

Participants were asked to describe, in an open-ended question, the difficulties that were encountered during the practice of preventive dentistry. The difficulties were divided into three categories: patient factors, facility and equipment factors, operator factors.

The most common difficulty listed when dealing with patients was that they do not keep their appointments. The table below indicates the breakdown of patient factors by district. It can be seen that patients not keeping their appointments is a common issue throughout the province (Table 19).

Table 19: Factors relating to patients per district
The most common facility and equipment complaint was broken equipment. The table below indicates the breakdown of facility and equipment factors by district. It can be seen that broken equipment is a common issue throughout the province (Table 20).

<table>
<thead>
<tr>
<th>Facilities and equipment factors</th>
<th>Ekurhuleni</th>
<th>Jhb Metro</th>
<th>Sedibeng</th>
<th>Tshwane</th>
<th>West Rand</th>
<th>Total (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Broken equipment</td>
<td>2</td>
<td>3</td>
<td>10</td>
<td>13</td>
<td>15</td>
<td>43</td>
</tr>
<tr>
<td>Lack of materials</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>Lack of equipment</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Repair waiting times too long</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Limited number of dental chairs available when 2 clinicians are at work</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Difficulty with moisture control</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>No electricity or water</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Lack of transport to different facilities</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 20: Factors relating to facilities and equipment per district

The most common operator related complaint was that the patient load was too high, followed by the complaint that too much time was being spent on dental extractions. The table below indicates the breakdown of operator factors by district (Table 21).
<table>
<thead>
<tr>
<th>Operators factors</th>
<th>Ekurhuleni</th>
<th>Jhb Metro</th>
<th>Sedibeng</th>
<th>Tshwane</th>
<th>West Rand</th>
<th>Total (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too many patients; more clinicians needed</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>Not enough time: too busy with XLA</td>
<td>2</td>
<td>5</td>
<td>6</td>
<td>3</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>Fatigue and stress</td>
<td>-</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Lack of operator motivation because patients are not motivated</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Uncooperative patients</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Difficult to educate patients</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Uncooperative staff or working without an assistant</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Limited services (loss of skills)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Long waiting lists for appointments</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Not enough oral hygienists to improve oral education in the community</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 21: Factors relating to operators per district
Chapter 6: Discussion

6.1 Knowledge pertaining to Preventive Dentistry (Theoretical Knowledge) - Question 1 to 8:

A significant difference in knowledge was seen amongst the different districts of Gauteng, with Johannesburg Metro having the highest pass rate (100%) and Tshwane District having the lowest pass rate (36.4%)(p<0.05). This differs from a study conducted by Ghasemi, et al., (2007) that showed no significant difference between knowledge and practice location of its participants.

The difference in knowledge amongst the districts is likely due to the age range of participants within each district. Each district is governed by the same oral health department; therefore each oral health facility should be following the same oral health policy with access to the same resources. Treatment modalities in each facility should be the same within each district as well. Due to facilities and policies being the same, the only other factor that may account for the difference in knowledge pass rates is age and training. This study found an inverse relationship with knowledge and age. When examining the age ranges of the individual districts it can be seen that majority of Johannesburg Metro’s participants were younger (under the age of 35 years), while a majority of Tshwane District’s participants were older (over the age of 35 years).

When examining the questions individually it was found that clinicians had adequate knowledge regarding the role of sugar in caries development and the importance of candida infection in diagnosing HIV (Question 2 and 5). It was also found that there was a gap in information regarding the proper use of topical fluoride in toothpastes (Question 4). This finding is similar to that found in a study conducted by Ghasemi, et al., (2007) and Nthenya (2013). Lack of awareness of the role of fluoride in preventive dentistry is further emphasized by the fact that the most neglected preventive dentistry procedure, in the province as a whole, was the use of topical fluorides. This finding differs from the results found by a study conducted by Tseveenjav (2004) where FTP was the most commonly used preventive measure amongst dental students.

Knowledge showed a significant weak inverse relationship with age and years of experience (p<0.05), the older the participants were, or the more experience they had the lower the level of prevention knowledge they had. This finding is in line with the findings of a study conducted by Ramya, et al., (2015). As time goes by dental curricula change and new research comes to light, gradually changing the practice and use of dental materials, thus creating a difference in the level of knowledge amongst clinicians. Older clinicians may not be fully aware of newer dental interventions.

6.2 Preventive Strategy (Application Knowledge) - Question 16 and 17:

All of the participants of the study were unaware of the DMFT score of 12 year olds within their district. Children at the age of 12 years old should have a full set of permanent dentition, and 12 years of age is the international standard age for comparing the oral health of communities. The DMFT score also alludes to oral health issues within this age group and can be used as an indicator to plan oral health programmes. High loss of permanent dentition results in a higher need for dental rehabilitation.
In younger children early tooth loss may result in orthodontic or orthognathic issues (Blinkhorn, 1993). Therefore, in not knowing the DMFT score at 12 years, the operators are not aware of how successful they are in achieving oral health in their community.

Question 17 tested participant’s abilities to predict the effectiveness of various community-based preventive programmes. Only 24 participants (30.4%) answered this question correctly. This high failure rate could be related to clinicians not really understanding the implications of external factors, such as social determinants, on health. A lot of individuals from underprivileged communities may not prioritize oral health due to difficulties such as lack of clean water or inability to put food on the table (Petersen, 1992). Clinicians need to undergo further training or be sent for community outreach programmes to witness firsthand what difficulties are met in underprivileged communities to better understand how this may affect their oral health.

When comparing the results for Questions 1 to 8 (theoretical knowledge) against the results of Question 17 (a to c) it can be seen that while the clinicians may have adequate textbook knowledge, they are not capable of implementing it.

### 6.3 Attitude towards Preventive Dentistry – Question 9 (a to c):

In general participants had good attitude towards preventive dentistry; they believed it was important and useful. This is in accordance with a study conducted by Nthenya (2013). Attitudes can be influenced by beliefs, values and social backgrounds (Cherry, 2018a). This study found that social backgrounds such as gender, profession and location did not have a significant influence of the participant’s attitudes (p>0.05). This finding is similar to that of a study by Ahuja, et al., (2014), but it is unlike Ghasemi, et al., (2007) where females had significantly more positive attitude than the men (p<0.05).

Just like the study conducted by Ramya, et al., (2015), this study did not find any significant correlation between knowledge and attitude.

It is also interesting to note that although the operators were in support of prevention, they did not think that it was easy to implement. When asked about the ease of preventive dentistry practice it was found that an almost equal number of participants found practice to be easy (39.7%) as those who found its practice to be difficult (37.2%). This difficulty could be related to the barriers faced during its practice.

It is also interesting that those who had an oral hygienist considered prevention easy to practice. This may be because they are able to refer the patients to someone else in the clinic.

### 6.4 Practice of Preventive Dentistry:

From the study it can be seen that the participants carried out preventive dentistry procedures such as the issue of oral hygiene instructions, diet counseling, placement of fissure sealants and topical fluoride, biannual checkups, and scale and polish. The practice of preventive dentistry was mostly
similar within the different districts, indicating their idea of what procedures were most important; oral hygiene instructions being the most common procedure and the placement of topical fluoride being the most neglected.

Despite oral hygiene instructions being the most common procedure carried out within the province, there is still a high demand for dental extractions within the public sector (Department of Health, 2003) in spite of the effort made to educate patients. This causes one to think that the chair-side dental health education is an ineffective method of oral health promotion and does not really bring about any behavior change within patients (Watt, 2005).

The most neglected preventive procedure was the placement of topical fluorides. This can be expected; as mentioned before, the participants were not fully aware of the expected benefits of topical fluoride and its proper use in preventive dentistry.

The study found that practice was not affected by knowledge nor attitude (p>0.05). If knowledge and attitude did not affect practice then it could be deduced that the practice is poor due to external barriers.

6.5 Barriers affecting Practice of Preventive Dentistry:

6.5.1 Patient Barriers:

The most common complaint regarding patient barriers was that patients do not keep their appointments. Reasons for missing appointments range from lack of transport, to fear of dentists, long waiting periods for appointment dates, inability to get leave from school or work, and patients simply forgetting that they had an appointment to begin with (Tandon, et al., 2016). The simplest way to avoid scheduling of appointments would be to provide preventive dentistry to patients as they walked in, however, this is not possible as participants also complained that too much time was being spent on dental extractions thereby leaving insufficient time to do any preventive dentistry work.

Another common complaint was that patients were not educated enough. This complaint is interesting considering that the most common preventive procedure was the issue of oral hygiene instructions. A limitation to this procedure is that anything from a passing phrase such as “you need to brush your teeth” to brushing techniques being demonstrated on education models may be considered as oral hygiene instructions. The type of education offered to patients was not evaluated in this study and may vary in quality from clinician to clinician. It is possible that due to lack of time – another complaint from participants - oral hygiene instructions are being issued in a hurry and are therefore less informative. But, oral hygiene instruction yields poor results anyway (Watt, 2005).

The third most common patient-related complaint was non-compliance. This may be due to patients being asymptomatic and not seeing the need to maintain their oral hygiene, patients not fully understanding the importance of oral hygiene, patients finding following instructions inconvenient (the inconvenience of flossing), and patients being unhappy with side effects (bleeding on brushing in patients with gingivitis, taste disturbances from using mouth washes) (Kleinsinger, 2010). Patient compliance is influenced by two key components; the “macro-environment” that is shaped by their
socio-demographic factors, and the “micro-environment” which is the dental office. The first environment cannot be changed but the in-office environment can be controlled by the clinician. Dentists should simplify instructions so that they are easy to understand and follow, address patient’s concerns, and should give patients positive rather than negative reinforcement. If a good relationship is developed with patients they are more likely to comply with treatments given (Blinkhorn, 1993).

6.5.2 Facility and Equipment Barriers:

The most common complaint in this section was that equipment was broken. Equipment that is old and not maintained adequately will not function well and hinder treatment. Procedures such as the placement of fissure sealants and scale and polish require equipment such as a suction, air syringe, curing light and a scaling machine. Broken equipment was the highest complaint amongst all the districts creating issues with placement of fissure sealants and providing scale and polish for patients. Participants also complained that repair waiting times were too long further delaying necessary preventive procedures. When equipment is non-functional, the only preventive dentistry procedure that can be carried out is oral hygiene instruction, placement of topical fluoride and diet counseling. High risk individuals who require fissure sealants and scale and polish cannot be attended to and may have to be turned away or have treatment delayed. This in turn de-motivates patients and makes them less likely to return for follow up appointments (Kleinsinger, 2010).

Another complaint was that of lack of dental materials. Having adequate skills and knowledge with functional equipment is not enough to carry out preventive dentistry procedures. Resources, such as materials, are needed as well. If materials are not present, procedures such as fissure sealant, placement of topical fluoride and prophylactic polishing cannot be carried out for patients and again treatment may need to be delayed until a later time. Patients only attend the dental clinic when they have symptoms; when they are sent away without the necessary prophylactic treatment it becomes problematic as they will probably only come back when the issue has worsened and the only treatment modality left to do is a dental extraction (Agbor, et al., 2018).

These issues are not unique to the Gauteng Province. Smit and Osman (2017) have shown that this occurs in the Western Cape Province as well and probably in most other provinces in South Africa. According to the study the basic oral health package could not be provided due to lack of equipment with some clinicians attending to patients on ordinary plastic chairs instead of dental chairs (Smit & Osman, 2017).

6.5.3 Operator Barriers:

The most common operator-related complaint was that one operator was expected to tend to too many patients and that more clinicians were needed. This comes as no surprise as the dentist:patient ratio in South Africa is unfavorable (0.026:1000) (Strachan, et al., 2011) in comparison to the ratio in most industrialized countries (1:2000) (WHO, 2018). Clinicians are clearly overburdened and it is not surprising to find that preventive dentistry is neglected. Being understaffed creates issues such as low work quality. Clinicians are so focused on pushing numbers that the quality of service provided is
compromised by their physical stress and fatigue, as found in this study. It also results in difficulty in reaching goals, increased chances of mistakes happening, and neglect of certain procedures, such as in this case, neglect of preventive dentistry (Pierce, 2016).

Another complaint was that there was not enough time to practice preventive dentistry due to the high need for dental extraction. When people have more on their plates than they can accomplish in a single day, they lack focus and prioritization. When people are working against the clock they often feel over-whelmed and focus only on what is urgent at the time. In this case it meant clearing the large number of patients who require dental extractions and other procedures such as preventive dentistry were ignored (Activia Training, 2018). Not having enough time also affects patient consultation. When not enough time is spent with each patient, medical histories are done briefly and often only the main complaint is addressed and other issues, if present, are overlooked.

Fatigue was the third most common complaint under this section. “Fatigue is the state of feeling very tired, weary or sleepy”. Fatigue can result from lack of sleep, prolonged mental or physical work, or boring or repetitive tasks (such as the monotonous task of extracting teeth every day). Fatigue can result in reduced decision-making abilities, reduced communication skills and reduced work performance (Canadian Centre for Occupational Health and Safety, 2017). In the dental work place, fatigue can result in an increased amount of dental fractures, mis-diagnoses, and lack of desire to perform “unnecessary” tasks such as preventive dentistry (if it’s not an emergency, it’s not important). Dental clinicians often perform dental extractions in the standing position or bent over patients. This position is physically exerting and may further exacerbate physical fatigue, decreasing the likelihood of clinicians wanting to perform other tasks (Shaik, et al., 2011).

An interesting complaint was lack of operator motivation due to unmotivated patients. Motivation refers to factors that make human beings goal-oriented. Motivation drives behavior and explains what we do (Cherry, 2018b). People are motivated to do things due to external rewards, such as receiving a salary for a month’s worth of work (Cherry, 2018c). Similarly clinicians are reward-oriented at work. When a clinician’s efforts are met by positive attitudes from patients, it acts as motivation for the clinician to work harder to improve the said patient’s oral health. However, when efforts are met with poor attitude or lack of interest from patients, the clinician in turn feels that his/her efforts are in vain and are not worth the trouble (If my patient doesn’t care, why should I?).
Chapter 7: Conclusion and Recommendations

From this study it can be seen that dental clinicians within the Gauteng Department of Health are equipped with adequate knowledge to treat their patients and have favorable attitudes towards preventive dentistry. Dental clinicians practiced most of the preventive dentistry procedures with the exception of the placement of topical fluoride. This can be addressed by putting more emphasis on this subject in dental curricula and continuous professional development programmes. A significant inverse correlation between knowledge and age or experience was found. Older clinicians were not fully aware of newer dental interventions. This too can be remedied by emphasizing newer dental strategies during in-service training and continuous professional developmental programmes.

There was no association found between the practice of preventive dentistry and knowledge or attitudes towards it. It is therefore safe to say that preventive dentistry is negatively affected due to the barriers faced during its practice. These barriers play a significant role in inhibiting the practice of preventive dentistry and should they be addressed the Gauteng Department of Health may come one step closer to improving the practice of preventive dentistry.
References


Overview:

I, Dr Rahisa Shaikh, am a dentist working in the West Rand District at ML Pessen Dental Clinic, Randfontein. I am a registered Masters student in the Department of Community Oral Health at the University of the Western Cape.

For the past several years government based oral health clinics and hospitals have been providing services to the public community where dental extractions are the most common treatment modality provided. Many attempts have been made to reduce the number of dental extractions done and to increase the number of dental restorations and preventive dentistry procedures done.

My study aims to determine dental clinician’s knowledge, attitude and practices towards preventive dentistry. My study will enable me to better understand what preventive dentistry procedures are carried out, which procedures are neglected and what difficulties clinicians face when carrying out these procedures. In this way problems in the different districts can be address and services can be improved.

In order to carry out this study, I will need you to please fill in the following questionnaire. This will take about 10 minutes of your time. The questionnaire is simple and consists of closed ended questions requiring you to mark an “X” at the appropriate answer. The last question is an open ended question requiring you to explain any difficulties faced when providing preventive dentistry to your patients.

All information gathered will be treated as strictly confidential. There are no risks involved in participating in this survey, it is entirely voluntary and all information will be anonymous and confidential. You can withdraw from the study at any time without it being held against you.

Your participation is greatly appreciated. Should you wish to know more about this research you may contact me on 076 259 5547 or email shaikhrais@gmail.com. You may also contact my supervisor Professor Barrie at rbarrie@uwc.ac.za.

Please provide informed consent below, and return this form to me separate to the questionnaire

Thank you for your co-operation

Dr R Shaikh, BDS (WITS)
Appendix 2: Consent Form

Gauteng Department of Health, West Rand District
Knowledge, attitude and practices towards preventive dentistry amongst clinicians in Gauteng Department of Health

I, _______________________________ hereby agree to participate in this survey, Knowledge, attitude and practices towards preventive dentistry amongst clinicians in Gauteng Department of Health as has been explained to me.

___________________________________  _______________
Signature Date

http://etd.uwc.ac.za/
Appendix 3: Questionnaire of Knowledge, Attitude and Practice

Survey of Gauteng Dentists and Dental Therapists

Ref number: □□□

Personal information: mark “X” over the selection or the blank box to the right

Profession: [ ] Dentist  [ ] Dental Therapist

Gender: [ ] Male  [ ] Female

Age (years): _____  Number of years in practice (years): _____

Highest level of education: [ ] Undergraduate  [ ] Post graduate diploma  [ ] MSc  [ ] PhD

Health District: [ ] Johannesburg Metro  [ ] West Rand  [ ] Tshwane  [ ] Ekurhuleni  [ ] Sedibeng

Do you have an oral hygienist working with you? [ ] Yes  [ ] No

Please answer the following questions regarding preventive dentistry:

1. Examining a newly erupted tooth with a sharp explorer will damage enamel rods and predispose the tooth to caries. [ ] True  [ ] False

2. The frequency of sugar consumption plays a greater role in producing caries than does the total amount of sugar consumed. [ ] True  [ ] False

3. Normal salivary flow for un-stimulated saliva is 0.3 – 0.4 ml per minute. [ ] True  [ ] False

4. Rinsing the mouth after tooth brushing will decrease the effect of fluoride in the toothpaste. [ ] True  [ ] False

5. Candida infection of the oro-pharynx is indicative of low CD4+ counts in HIV+ patients. [ ] True  [ ] False

6. Chlorhexidine Mouthwash is effective against:
   [ ] Gram positive bacteria  [ ] Gram negative bacteria  [ ] Fungus  [ ] All of these  [ ] None of these

7. The following medication is NOT recommended for children under the age of 6 years:
   [ ] Tetracycline  [ ] Augmentin  [ ] Metronidazole  [ ] All of these  [ ] None of these

8. The Stephan Curve is used to depict the levels of the following in the mouth:
   [ ] Lactobacilli  [ ] IgG  [ ] pH  [ ] S. Mutans  [ ] None of these

9. Please rate the following statements on the scale provided by placing a “X” on each scale:

Preventive Dentistry is:

| (a) Useless in preventing dental caries incidence | 1 | 2 | 3 | 4 | 5 |
| (b) Not Important for community oral health | 1 | 2 | 3 | 4 | 5 |
| (c) Easy to practice | 1 | 2 | 3 | 4 | 5 | Useful in preventing dental caries incidence | Important for community oral health | Difficult to practice |
Which of the following procedures have you carried out in 2016 on patients who require it? (Mark “X” where appropriate)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Always practiced</th>
<th>Usually practiced</th>
<th>Sometimes practiced</th>
<th>Never practiced</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Oral hygiene instructions given to all patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 Diet counselling for patients with high caries risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Application of topical fluoride where needed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 Application of fissure sealants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 Scaling and polishing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 Scheduling biannual check-ups for patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please answer the following questions:

16. What is the current DMFT of 12 year old children in your district? Don’t know

17. What caries reduction (%) can be expected from implementing the following programmes?
   (a) A brushing programme implemented at schools: %
   (b) A sealant programme implemented at schools: %
   (c) Community water fluoridation: %

Please describe any challenges faced when performing preventive dentistry/reasons for lack of preventive dentistry practices during the year of 2016:

Factors relating to facilities and equipment
__________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________

Factors relating to patients:
__________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________

Factors relating to operator:
__________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________

Other:
__________________________________________________________________________________
__________________________________________________________________________________
__________________________________________________________________________________

Thank you for your participation.
Appendix 4: Ethical Approval, University of Western Cape

OFFICE OF THE DIRECTOR: RESEARCH RESEARCH AND INNOVATION DIVISION

Private Bag X17, Bellville 7535
South Africa
T: +27 21 959 2988/2948
F: +27 21 959 3170
E: research-ethics@uwc.ac.za
www.uwc.ac.za

29 June 2017

Dr R Shaikh
Community Dentistry
Faculty of Dentistry

Ethics Reference Number: BM17/5/11

Project Title: Knowledge, attitude and practices towards preventive dentistry amongst clinicians in Gauteng Department of Health.

Approval Period: 09 June 2017 – 09 June 2018

I hereby certify that the Biomedical Science Research Ethics Committee of the University of the Western Cape approved the scientific methodology and ethics of the above mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

Please remember to submit a progress report in good time for annual renewal.

The Committee must be informed of any serious adverse event and/or termination of the study.

Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape

PROVISIONAL REC NUMBER -130416-050
Appendix 5: Study Approval Letter West Rand District

GP_201707_001
Dr Raisa Shaikh

RE: PERMISSION TO CONDUCT RESEARCH IN WEST RAND DISTRICT.

Your correspondence on the above matter refers. Thank you for your request to conduct research in West Rand District in doing a KPA study among dental clinicians.

Permission is hereby granted to you to conduct research in selected clinics in West Rand. I am anticipating that you will conduct your research with the knowledge of all relevant Managers in respective clinic and Sub-district.

You are expected to share the findings and recommendations with the district in order to improve service delivery to people of west rand.

I hope you find the above in order.

Yours faithfully,

MS PULENG MUSO
DIRECTOR
WRDCA
DATE: 14-09-2017
Appendix 6: Study Approval Letter Johannesburg Metro

Dear Dr Rahila-Bana Shaikh,

Re: Knowledge, attitude and practices towards preventive dentistry amongst dental clinicians in Gauteng Department of Health

Your application dated 2017/10/12 refers.

The District Research Committee has reviewed your application. This letter serves as an in-principle approval to access the Districts Health Facilities (mentioned below) for the above project subject to following conditions:

The facility to be visited: Kindly see the attachment at the back

The research can only commence after you submit a ethics clearance certificate from a recognized institution.

- This facility will be visited from 12/10/2017 to 12/10/2018
- You will report to the Facility Manager before initiating the study.

<table>
<thead>
<tr>
<th>Region</th>
<th>Regional Health Manager</th>
<th>Contact No.</th>
<th>Cell phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Dr N Maleka</td>
<td>011 681 2002</td>
<td>071 872 6649</td>
</tr>
<tr>
<td>AF</td>
<td>Ms Matiila</td>
<td>011 440 1259</td>
<td>082 307 0267</td>
</tr>
<tr>
<td>B</td>
<td>Ms Paulineh Maepe</td>
<td>011 718 9656</td>
<td>082 551 5804</td>
</tr>
<tr>
<td>F(LA)</td>
<td>Pumla Nyamane</td>
<td>011 477 9936</td>
<td>083 426 4368</td>
</tr>
<tr>
<td>D</td>
<td>Ms Maria Mazibuko</td>
<td>011 674 1200</td>
<td>082 791 9919</td>
</tr>
</tbody>
</table>

- Participants’ rights and confidentiality will be maintained all the time.
- No resources (Financial, material and human resources) from the above facilities will be used for the study. Neither the District nor the facility will incur any additional cost for this study.
- The study will comply with Publicly Financed Research and Development Act, 2008 (Act 51 of 2008) and its related Regulations.
- You will submit a copy (electronic and hard copy) of your final report. In addition, you will submit a six-monthly progress report to the District Research Committee.
- Your supervisor and University of South Africa will ensure that these reports are being submitted timeously to the District Research Committee.
- The District must be acknowledged in all the reports/publications generated from the research and a copy of these reports/publications must be submitted to the District Research Committee.

We reserve our right to withdraw our approval, if you breach any of the conditions mentioned above.

Please feel free to contact us, if you have any further queries. On behalf of the District Research Committee, we would like to thank you for choosing our District to conduct such an important study.

Regards,

Dr EM Ohaju
Chairperson: District Research Committee
Johannesburg Health District
Date 12/10/2017

Mrs M. Morewane
Chief Director
Johannesburg Health District
Date: 12/10/2017
Appendix 7: Study Approval Letter Tshwane District

TSHWANE RESEARCH COMMITTEE: CLEARANCE CERTIFICATE

MEETING: 09/2017
PROJECT NUMBER: 71/2017
NHRD REFERENCE NUMBER: GP_201707_001

TOPIC: Knowledge, attitude and practices towards preventive dentistry amongst dental clinicians in Gauteng, Department of Health

Name of the Researcher: Dr. RB Shaikh
Name of the Supervisor: Professor Bane
Facility: Tshwane Dental Faculty
Name of the Department: Dental Public Health, University of the Western Cape

NB: THIS OFFICE REQUEST A FULL REPORT ON THE OUTCOME OF THE RESEARCH DONE AND
NOTE THAT RESUBMISSION OF THE PROTOCOL BY RESEARCHER(S) IS REQUIRED IF THERE IS DEPARTURE FROM THE PROTOCOL PROCEDURES AS APPROVED BY THE COMMITTEE.

DECISION OF THE COMMITTEE: APPROVED

Dr. Lufuno Razwiedani
Chairperson: Tshwane Research Committee
Date: 20/09/2017

M&M Lerutia
Acting Chief Director: Tshwane District Health
Date:
Appendix 8: Study Approval Letter Sedibeng District

OFFICE OF THE DIRECTOR SEDIBENG DHS

TO : DR. R. SHAIKH
UNIVERSITY OF WESTERN CAPE

FROM : MS. S. HLAHANE – DIRECTOR SEDIBENG DHS

DATE : 18 SEPTEMBER 2017

SUBJECT : PERMISSION TO CONDUCT RESEARCH – KNOWLEDGE, ATTITUDE AND PRACTICES TOWARDS PREVENTIVE DENTISTRY AMONGST DENTAL CLINICIANS IN GGAUTENG DEPARTMENT OF HEALTH

Please be informed that permission has been granted for you to carry out the abovementioned research at Boipatong CHC, Bochelung CDC, Empilisweni CDC, Johan Heyns CHC, Kopanong Hospital, Leval Mbuta CHC, Middwyl CDC, Randata Clinic, and Sharpeville CHC. It is noted that you have already obtained Provincial Ethics Committee as well as the University of Western Cape Ethics Clearance.

Kindly note that a copy of the report on the findings (especially) that concerns Sedibeng District must be submitted to the Director’s office at the completion of the study.

This permission is also subject to the conditions stated in the protocol and any change in design and methodology must be communicated to the District Director.

We wish you success in your research endeavours.

DIRECTOR SEDIBENG DHS
DATE: 2017/09/18

RESEARCH PROPOSAL DETAILS: GP_201707_001

Sedibeng DHS, Cnr Frikkie Meyer & Pasteur BLVD, Private Bag X 023 Vanderbijlpark
Appendix 9: Study Approval Letter Ekurhuleni District

EKURHULENI RESEARCH CLEARANCE CERTIFICATE

Research Project Title: Knowledge, attitudes and practices towards preventive dentistry amongst dental clinicians in Gauteng Department of Health.

NHRD NO:
Research Project Number: 15/09/2017-9

Name of Researcher(s): Dr. RB Shaikh

Division/Institution/Company: Dental Public Health

DECISION TAKEN BY THE EKURHULENI HEALTH DISTRICT RESEARCH COMMITTEE (EHDC)

- THIS DOCUMENT CERTIFIES THAT THE ABOVE RESEARCH PROJECT HAS BEEN FULLY APPROVED BY THE EHDC. THE RESEARCHER(S) MAY THEREFORE COMMENCE WITH THE INTENDED RESEARCH PROJECT.

- NOTE THAT THE RESEARCHER WILL BE EXPECTED TO PRESENT THE RESEARCH FINDINGS OF THE PROPOSED RESEARCH PROJECT AT THE ANNUAL EKURHULENI RESEARCH CONFERENCE.

- THE RESEARCH COMMITTEE WISHES THE RESEARCHER(S) THE BEST OF SUCCESS.

DEPUTY CHAIRPERSON: EKURHULENI METROPOLITAN MUNICIPALITY
Dated: 03/10/2017

CHAIRPERSON: GAUTENG DEPARTMENT OF HEALTH (EKURHULENI REGION)
Dated: 09/10/2017