

**ORAL HEALTH PROMOTION IN PRIMARY SCHOOLS IN  
MOFOLO, SOWETO**

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**A research report submitted to the Faculty of Health Sciences,  
University of the Witwatersrand, in partial fulfillment of the  
requirement for the degree of  
Master of Public Health**

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## DECLARATION

I, Ann Martha Nakaziba-Ouma, declare that this research report is my own work.

It is being submitted for the degree of Master of Public Health of the University of the Witwatersrand, Johannesburg.

It has not been submitted before for any degree or examination at this or any other university.

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(Signature)

\_\_\_\_\_ day of \_\_\_\_\_, 2007

## **DEDICATION**

To John, my husband, for his love, support and encouragement.

To my parents for lovingly and patiently giving me direction in my life.

To my beautiful daughter Marjorie, who has brought much joy to my life.

## **ACKNOWLEDGEMENTS**

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## ABSTRACT

The oral health knowledge, attitudes and practices of primary school children and teachers in Mofolo, Soweto were determined.

The enabling and inhibiting factors for oral health promotion in the school environment were also assessed.

The aim of the study was to determine if there was any difference in knowledge, attitudes and, practices in learners and teachers and their environment at schools that were exposed to a preventive, educational and tooth brushing programme and those learners and teachers that were not exposed to the programme.

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Three hundred and thirty-six primary school children six to twelve years of age from four primary schools in Mofolo, i.e. Itekeng, Vukani, Emsebeni and Tshedimoso completed questionnaires. Itekeng and Vukani primary schools were part of an existing tooth brushing, educative and preventive programme, and Emsebeni and Tshedimoso primary schools were not.

Four focus group discussions (one from each school) were held with regard to knowledge of oral health and hygiene and the school environment. Seven teachers from two of the four schools and eight teachers from each of the other two schools attended the discussions.

Both the learners and teachers at all the schools had little knowledge of dental care, like tooth brushing with fluoridated toothpaste. Frequency of brushing was

poor. Most of the learners (61 percent) for the exposed learners and 50 percent from the unexposed learners reported brushing their teeth once a day. Dietary habits of the learners revealed a high consumption of sugary snacks in between meals and sugar. Fifty-five percent of the exposed learners bought sweets and cakes and 56 percent of the unexposed learners bought fizzy drinks and fruit juices at school.

Forty-six percent of the exposed and 58 percent of the unexposed learners said they took more than three spoons of sugar with their breakfast. .

Utilisation of primary dental health services in the community by both teachers and learners was poor. More learners from the exposed schools (97 percent) than the unexposed (82 percent) had been to a dentist because they had a toothache. Only 1 percent from the exposed schools and 8 percent from the unexposed had been for a routine check up.

Learners from both school categories and teachers had no knowledge of fluoride or benefits of water fluoridation. Over 98 percent of learners from both school categories had never heard of fluoride.

The teachers believed it was their responsibility to teach learners and parents about oral health and showed willingness to participate in oral health promotion programmes.

The main source of oral health knowledge among the learners was home.

Several inhibiting factors to oral health promotion like poverty, lack of adequate oral health knowledge and poor school environment were identified in all the schools. There was no school policy regarding oral health promotion

In conclusion, there were no significant differences in the reported knowledge, attitudes and practices between the learners and teachers from the two schools that were part of the preventive, educational and brushing programme and those from the other schools that were not part of the programme.

This therefore shows that while preventive and educational programmes are an important component of oral health promotion, they are not adequate in changing knowledge, attitudes and oral health practices.

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# CHAPTER 1

## 1.1 BACKGROUND INFORMATION

Mofolo is one of the 'locations' or townships of Soweto, which is the largest group of Black townships in South Africa, situated south west of Johannesburg<sup>1</sup>.

The residents of Soweto are predominantly of low socio-economic status, with a few being of medium and high socio-economic status<sup>2</sup>.

There are ten primary health care dental clinics in Soweto which provide basic dental care to the population. There are eleven primary schools in district three (C3) of Mofolo (Appendix I). Preventive and educational programmes for primary school children have been implemented for more than twenty years and children in ever-increasing numbers were thus exposed to regular dental examination, application of topical fluorides, fissure sealants and oral hygiene instruction<sup>3</sup>.

When planning and implementing these programmes, it was anticipated that these would significantly improve oral health of the people and especially children of Soweto by influencing their knowledge, attitudes and practices. However, anecdotal reports suggest that poor levels of oral hygiene and inadequate knowledge and practice of four key simple messages and measures still prevail among the school population.

There are four simple messages that should be conveyed and learnt to achieve this objective<sup>4</sup>.

1. Restrict sugar- containing foods to meal times.
2. Clean teeth and gums thoroughly everyday with a fluoride toothpaste.
3. Attend the dentist regularly.
4. Water fluoridation is beneficial.

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The primary health care approach is the Government's formal policy at national, provincial and district levels<sup>5</sup>.

Health promotion is one of the important pillars of the primary health care approach. Health education is a key element of health promotion and forms an important strategy for promoting oral health promotion as defined by the Ottawa charter<sup>6</sup> is the process of enabling people to increase control over and to improve their health.

To reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and realize aspirations to satisfy needs and to change or cope with the environment.

The charter sets out five principles of health promotion action:

1. Build healthy public policy.
2. Create supportive environment.
3. Strengthen community action.
4. Develop personal skills.
5. Reorient health services beyond the curative sector.

Health education which is the main focus of this study is one of the elements of the five pillars of health promotion.

It is a continuing process of informing people how to achieve and maintain good health, motivating them to do so and promoting environmental and life style changes to facilitate their objective<sup>7</sup>.

The fundamental conditions and resources for health are; peace, shelter, education, food, income, suitable ecosystem, sustainable resources, social justice and equity<sup>6</sup>. Improvement in health therefore requires a secure foundation in these basic prerequisites.

Surveys regarding knowledge, attitudes and practices (KAP) are based on the theory that an individuals health related behaviour is influenced by their knowledge of the disease and necessary health promoting actions to prevent the condition, as well as their attitudes and beliefs towards the disease or health promoting actions<sup>8</sup>.

KAP questionnaires aim to measure the variables of knowledge, attitudes and the related practices the variables are believed to predict. These surveys usually take the form of interviews or questionnaires. Results could assist in design, implementation and evaluation of more effective and efficient health promotive and educational programmes.

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This study investigated the knowledge, attitudes and reported practices of school children (learners) and teachers in four primary schools in Mofolo, Soweto.

Two of the schools (Vukani and Itekeng) were part of a preventive, educational and brushing programme and the other two (Tshedimoso and Emsebeni) were not part of the programme.

The study sought to assess the effectiveness of one of the elements of health promotion interventions i.e. health education, which had been implemented for several years.

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The study also investigated the school environment as well as some demographic factors of the learners like housing, family structure, and employment status of the parents or guardians, which all play an important role in health status as well as health related behavior.

## CHAPTER 2

### 2.0 LITERATURE REVIEW

#### 2.1 INTRODUCTION

A review of the literature reveals several studies that have been undertaken both in developing and developed countries regarding knowledge, attitude and practice of oral health care among primary school learners and teachers. Few of the studies reviewed assess the effectiveness of dental health educational programmes. The literature review includes papers from the different regions of the world with a focus on developing countries.

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#### 2.2 EUROPE

In one of the developing countries in Europe, Poland, a cross-sectional survey assessing changing oral health status and behaviour in six and twelve year-old school children was carried out in both urban and rural settings in 1995, 1997, 1999 and 2000. Levels of knowledge and attitudes of their respective mothers and teachers were also carried out in the year 2000. Results revealed that all the teachers knew about the poor dental conditions in children and wanted to become involved in oral health education. Tooth brushing at least twice a day

was reported by 64 percent of children in urban areas. Dental visits were made by 71 percent of children<sup>9</sup>.

Petersen et al<sup>10</sup> in a comparable setting using similar methodology to the one in Poland reported on the oral health behaviour of school children as well as the knowledge and attitudes to prevention among school teachers in Romania. In that study, data on the children was collected by personal interviews with the children and their mothers whereas the teachers responded to self administered questionnaires. Thirty seven percent of the children brushed their teeth at least twice a day and 26 percent reported that their teeth were cleaned by their mothers everyday. While these two studies were done in similar settings, the percentage of learners who brushed their teeth at least twice a day (37 percent) in this study was much lower than that of Poland (64 percent). All the school teachers in the Polish study<sup>9</sup> knew about the poor dental conditions among the children and wanted to become involved in oral health education<sup>9</sup>.

### **2.3 ASIA**

Similar KAP studies as well as studies to assess the effectiveness of oral health education programmes have been carried out in different parts of Asia.

In India, a cross-sectional (KAP) survey was done of oral hygiene measures of 2000 individuals including primary school children one and two years following

oral health education. Results showed that after two years of implementation, the practice of brushing three times, twice and once daily increased. Thirty seven percent of children reported brushing at least once a day and 31 percent twice a day <sup>11</sup>.

Peng et al<sup>12</sup> also investigated the oral health status and oral health behaviour of 12 year-old urban school children in Hubei province of the People's Republic of China by means of a cross-sectional survey using clinical examination and self administered questionnaires. They reported that only 40 percent of the children brushed their teeth at least twice a day and 46 percent had visited a dentist within the past years.

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Another cross-sectional survey on knowledge, attitudes and practices of children and teachers in Wuhan China was carried out by Petersen et al<sup>13</sup>. Personal interviews with mothers showed that dental care habits of children six and twelve years of age were poor. Twenty two percent of all children brushed their teeth twice a day and only 20 percent had visited the dentist within the past twelve months. Four percent had practical support from their parents in daily tooth cleaning. Self-administered questionnaires for school teachers revealed that (8 percent) had a positive response towards oral health education of children in their school<sup>13</sup>. In this particular study, the childrens' practices were reported by mothers as opposed to the study in Hubei province where self administered questionnaires were used for the school children. Although these two studies

were in similar settings, only 22 percent of children in Wuhan Province brushed their teeth twice a day compared to 40 percent from Hubei province.

D'Almeida et al<sup>12</sup> provided information on self-reported oral hygiene habits, health knowledge and sources of oral health information among a group of 12-14 year-old Japanese junior high school children by use of questionnaires. Their results indicated that 76 percent of the children claimed that tooth brushing was the main activity which they attended in the school-based oral health education programme. Sixty-three percent claimed that tooth brushing was the main subject they had been taught. The school was identified by 48 percent of children as their main source of oral health information; 11 percent of children indicated the knowledge of the preventive action of fluoride.

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In another cross-sectional survey on self-care practices and dental visiting habits of 6 and 12 year-olds in Suratthani province in southern Thailand, a significant number of children reported high sugar consumption every day; soft drinks (24 percent), milk with sugar (34 percent), and tea with sugar (26 percent). Experience of pain during the previous 12 months was reported by 53 percent; 66 percent saw a dentist within the previous year and 24 percent reported that visits were due to problems with their teeth. Tooth brushing at least once a day was reported by 88 percent<sup>15</sup>.



An assessment of the effectiveness of primary school-based oral health education among 8-12 year-olds in West Java, Indonesia revealed that tooth brushing had significantly improved among the children who were exposed to the programme and who spent more time on tooth brushing when supervised. Differences in oral health knowledge were apparent but self-reported habits pertaining to oral health were similar between children from the experimental and control schools<sup>16</sup>.

These results differ from those from a study in India<sup>11</sup> which used similar methodology in a related setting. While there was no difference in behaviour following oral health education in this particular study, the Indian survey showed that the brushing frequency of twice a day and three times a day had increased following oral health education after one and two years.

## **2.4 MIDDLE EAST REGION**

A survey on sources and levels of oral health knowledge and attitudes towards oral health education in a school was carried out among Arab school teachers in Northern Israel<sup>17</sup>. Data was collected by means of questionnaires. All the teachers were not motivated to being involved in school dental programmes but had positive attitudes towards informing parents about the importance of oral hygiene and teaching children about preventive dentistry. Almost 69 percent of the teachers were aware of the caries preventive role of fluoride.

In another study on effectiveness of oral health education in Israel, Topaz et al<sup>18</sup> subjected 14 groups of children to different combinations of tooth brushing and oral health education programmes over a year. Results indicated that the six groups who were subjected to tooth brushing and oral health education showed the greatest improvement in oral health. These results are similar to those in the India study<sup>11</sup> referred to above.

Rajab et al<sup>19</sup> analyzed the oral health care habits of school children and parents in Jordan by means of a cross-sectional self administered questionnaire for parents.. Results showed that 86 percent of the children saw a dentist for symptomatic reasons only, while 11 percent attended for dental check-ups. At their last visit to the dentist, 49 percent of the children had tooth extractions and only 8 percent had preventive fissure sealants. Thirty one percent of the children reported tooth brushing at least twice a day.

Teachers' oral health knowledge, attitudes and practices in Saudi primary schools of Riyadh were investigated by means of questionnaire. Results showed that all the teachers (100 percent) thought that tooth cleaning using a brush was important for good dental health. The majority of teachers (97.4 percent) understood the main causes of dental caries and thought that dental lectures were important for their learners<sup>20</sup>.

Al-Tamini et al<sup>21</sup> who undertook a cross-sectional study in a similar setting as Wyne et al<sup>49</sup> in Saudi Arabia found similar results. All teachers revealed positive attitudes towards school based oral health promotion. Results on the school children revealed that only 45 percent of children reported annual visits to the dentist. This percentage is higher than the 11 percent of children from the Jordan study<sup>19</sup> who visited the dentist annually.

## 2.5 AMERICA

Vignarajah<sup>22</sup> administered a questionnaire on oral health knowledge, behaviour and barriers to dental attendance of 12 year old school children in the Caribbean Island of Antigua. The author showed that 65 percent of children went to a dentist at some point and were likely to receive extractions at their last visit. Cost and fear of pain were found to be the common barriers which prevented regular dental attendance.

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The knowledge, attitude and preventive practices of third grade school children in Harris county, USA were investigated by means of a cross-sectional self administered questionnaire. Results showed most (58 percent) children reporting “fairly adequate” oral hygiene habits and oral health knowledge (48percent) and ‘adequate’ dietary patterns (59 percent). Children with inadequate oral health knowledge were twice as likely to have caries as children with adequate knowledge<sup>23</sup>.

## 2.6 AFRICA

In developing communities in Africa, the general lack of appropriate facilities and low educational levels, combined with minimal exposure to oral care in particular have been found to play a role in determining the poor knowledge and attitudes of these communities<sup>24</sup>.

In Libya, the oral practices among 6-12 year-old children from three different areas with different social economic levels were investigated by means of a questionnaire. It was found that 42.1 percent of the children did not brush their teeth. There were significant differences in practices between the different areas with the worst behaviour reported in low social economic areas<sup>25</sup>.

In West Africa, Otuyemi et al<sup>26</sup> investigated the oral health knowledge, attitudes to prevention and practices among 12 year-old primary school children living in suburban and rural Nigeria. The majority of suburban children (72.5 percent) cleaned their teeth with toothbrushes and toothpaste while most of the rural dwellers (49.8 percent) used chewing sticks. Overall, 83.5 percent of all the children had never visited the dentist despite the fact that most of them believed it was necessary to visit the dentist for a check-up. There were relatively high levels of oral health knowledge and positive attitudes towards prevention among children from both rural and suburban areas.

In Zanzibar (East Africa), the oral health profile of standards 1 to 5 (approx 8-14 years old) school children, mothers and school teachers were investigated by means of cross-sectional questionnaires. Results showed that the daily tooth cleaning was reported for 59 percent of children. The use of the traditional miswaki (chewing stick) was frequent in rural areas whereas toothbrushes were common in urban areas. The teachers were interested in providing school-based health education to the children <sup>27</sup>.

The children from the rural areas used chewing sticks while the urban dwellers used toothbrush and tooth paste to clean their teeth just like in the Nigerian study<sup>26</sup>.

Three cross sectional studies<sup>28,29,30</sup>, all in Tanzania, were carried out to investigate school teachers' oral health knowledge , attitudes and practices, willingness, participation and abilities in oral health education. While these studies were carried out in similar settings, and used the same methodology (structured questionnaires), the results differed significantly. Results from one of the studies<sup>28</sup> showed that teachers with primary education, who taught lower grades were significantly more active in providing general and oral health education than those with secondary education and who taught higher grades. The teachers involved in oral health education provision were mainly female junior teachers. However, Nyandindi et al<sup>29</sup> reported that the teachers' knowledge of oral health matters and their skills in tooth brushing were poor.

Health lessons in general were not accorded high priority within the school curriculum. The teachers preferred parents to instruct their children on tooth brushing. They stressed the shortage of time, materials for teaching health lessons and heavy workload. Mwangosi et al<sup>30</sup> on the other hand showed that school teachers were generally well informed about oral health related issues and had positive attitudes towards being involved in oral health education as part of their teaching curriculum. This differed from the findings reported in the other two Tanzanian studies<sup>28.29</sup>.

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Nyandindi et al<sup>31</sup> also investigated the oral health knowledge, attitudes, behaviour and skills of children entering school in urban and rural areas in Tanzania by means of interviews, oral hygiene check ups and practical exercises. Tooth brushing was a prevalent habit among these children. Modern toothbrushes were commonly used and preferred to chewing sticks. Toothpaste was considered essential and commonly used in urban areas but charcoal or ash was used in rural areas. The children's sugar consumption was low, but they widely valued sugary snacks. Results of this study are similar to those of the studies in Nigeria<sup>26</sup> and Zanzibar<sup>27</sup> with regard to the difference in items used for tooth brushing among the rural and urban dwelling children.

## 2.7 SOUTH AFRICA

Several studies on oral health knowledge, attitudes and practices have been carried out in South Africa in the rural and urban areas but mainly in poor communities.

Gilbert et al<sup>32</sup> conducted a study on oral health status and behavioural characteristics of patients seeking dental care in the former national homeland of Transkei, a rural community by means of clinical examinations and structured questionnaires. A large percentage (92 percent) of the population were familiar with basic oral hygiene practices like tooth brushing, but information on children's dietary practice revealed high consumption of sugary snacks in-between meals. Results from this study are similar to those obtained from two other studies carried out in Riverlea<sup>33,34</sup> (a mainly low income area close to Johannesburg).

One of these studies<sup>33</sup>, carried out by means of structured questionnaires to mothers illustrated that brushing seems to be the only preventive behaviour undertaken by the family (94 percent). In addition to friends and relatives, teachers at school were identified as a source of dental knowledge.

Similarly, Rudolph et al<sup>34</sup> who investigated the oral health status, knowledge, attitudes and behaviour of school children in Riverlea Primary School reported that 96 percent of children brushed their teeth once a day. The children's

attitudes towards oral health were generally positive but an assessment of dietary habits revealed a widespread consumption of harmful in-between meals sugary snacks. These findings are in contrast to those reported by Brindle et al<sup>35</sup> who undertook a cross sectional field study including situational analysis and focus group discussions in a rural school and community on oral health knowledge, attitudes and practices in Hlabisa, Kwazulu Natal. They found that oral health knowledge in the community and among the school children was low.

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Like the other studies reviewed in Zanzibar<sup>27</sup>, Tanzania<sup>28,29,31</sup>, Jordan<sup>19</sup>, and Isreal<sup>17</sup>, Chikte et al<sup>36</sup> examined the suitability of school teachers in Gazankulu, (a rural community in the north eastern part of South Africa) as oral health educators. Their suitability was measured by criteria such as oral health knowledge, attitudes, practices, motivation, interest and willingness to participate in school based oral health education programmes. Results showed that the majority of teachers had adequate knowledge of oral health; 78 percent of teachers thought that it was important for schools to assume responsibility for their students' dental health and 84 percent were prepared to take on additional responsibilities that would improve their students' dental health.

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## **2.8 THE EFFECTIVENESS OF DENTAL HEALTH EDUCATION PROGRAMMES**

Louw et al<sup>37</sup> conducted a longitudinal study to assess the community effectiveness of two school based caries preventive programmes on ten to fifteen year old primary school pupils in the town of Robertson in the Cape; 10-12 year-old school children constituted the experimental cohort which was exposed to a tooth brushing programme with fluoride dentifrice. This group was followed up for three years and compared to the thirteen to 15 year-old control or base line cohort. Results showed that the weekly fluoride rinse used by the children did not confer any additional benefit to their oral status.

A report on a health education package for dentistry<sup>38</sup> argues that the school system is an important and practical setting for implementing preventive programmes by providing an opportunity to reach a large number of children during early stages of development. The school provides an environment in which teachers can promote health via regular learning and constant reinforcement, change or modification of habit patterns.

Rudolph et al<sup>39</sup> in the manual “designing of school dental health programmes”, stress that the schools are ideal sites for promotive and preventive programmes

because services can be made available to all children in their familiar environment.

Several studies in the developed world although using differing methodologies have shown dental health education programmes to be effective and in other cases both ineffective and inefficient.

A four study on 5-15 year-olds over a four week period was done to determine the impact of a national dental education programme on oral health in Ohio in the United States of America. The subject population was found to have statistically significant greater knowledge with respect to optimal brushing time and optimal frequency of dental recall visits following the programme at week four<sup>40</sup>.

Friel et al<sup>41</sup> developed a pilot oral health programme that aimed to improve dental health knowledge and behaviour among Irish school children aged 7-12 years. The programme combined television campaigns and health talks from a dental nurse. Results showed an increase in oral health knowledge and improved practices with the dental nurse intervention. The percentage of children who reported using the recommended amount of toothpaste and brushing for three minutes appeared to have been further increased having observed the television campaign.

The effectiveness of two methods of dental education (i.e. only classroom-based dental health education and classroom-based education reinforced by small group sessions) for improving oral hygiene knowledge among high-risk grade one students in the City of North York, Canada was evaluated. After dental health education Interventions, students in both groups displayed improved knowledge for most oral hygiene questions. However, a significantly higher proportion of 'classroom plus small-group sessions' students displayed improved knowledge compared to students receiving only a classroom lesson. The results suggest a classroom-based lesson combined with small-group session is a more effective method of improving oral hygiene knowledge compared to a single classroom-based lesson<sup>42</sup>.

A historical analysis and case study on oral health promotion in schools in Melbourne, Australia and New Zealand stresses that while in the past much effort has been put into treatment-oriented and instructional programmes, their impact has been limited. Among those primary preventive activities that have demonstrated clear benefits are various types of fluoridation and adhesive sealants for the occlusal surfaces of teeth. It suggests that further emphasis on primary prevention over treatment is needed to better ensure the success of school-based oral health promotion programmes and that more effort needs to be put into policy direction, linkages within the educational system, planning and evaluation<sup>43</sup>.

A strategy to promote oral health in school children, suggests an innovative campaign to promote sugar-free cup drinks in schools. By implementing this campaign, a reduction of dental caries experience in school children may be achieved<sup>44</sup>.

A systematic review of current evidence on the effectiveness of dental health education<sup>48</sup> showed that dental health interventions have a small positive and temporary effect on plaque accumulation but a consistent effect on knowledge levels.

Sheiham et al<sup>78</sup> however suggested that isolated, individualistically focused oral health education interventions are ineffective, wasteful of limited resources and may increase inequalities.

In summary, the different studies reviewed though with differing methodologies, settings and objectives displayed several similarities and a few differences with regard to results obtained.

Most studies were cross-sectional studies that utilised structured questionnaires or a combination of clinical examinations and questionnaires. Generally, dental clinic attendance for both learners and teachers was poor especially for the developing countries. The vast majority of teachers were willing to take part in school based oral health promotion programmes.

The teachers' general oral health knowledge was adequate. Learners from different parts of the world revealed a high consumption of sugar and in between meals sugary snacks. Some of the oral health education studies revealed marked improvement in frequency of brushing among learners following classroom and small group sessions.

It is important to note that while the results were generally similar, different methods were used for the studies. Some results were obtained from learner interviews and others from parent interviews.

There is a paucity of knowledge with regard to the effectiveness of KAP studies on improving oral health knowledge, attitudes and practices among school children particularly in South Africa.

For over twenty years, the preventive, educative and brushing programme has been implemented in a number of primary schools in Soweto<sup>3</sup>. This is a programme where groups of children brush their teeth on a regular basis under supervision of oral hygienists. Dental health education is given to the teachers and children. Toothbrushes and toothpaste are also provided by the oral hygienist in charge of the programme who visits the schools once a week.

In the current study, Itekeng and Vukani primary schools were part of the preventive, educative and brushing programme. Emsebeni and Tshedimoso

primary schools were not part of the programme and therefore were not visited by the oral hygienists.

## **2.9 RESEARCH QUESTION**

Based on the above review, the author set out to determine if there was any difference in knowledge, attitudes and practices between learners and teachers who were exposed to a preventive, educational and tooth brushing programme in schools in Mofolo, Soweto and those who were not exposed to the programme.

## **2.10 AIM OF THE STUDY**

To compare the knowledge, attitudes and practices of learners and teachers at schools which were exposed to a preventive, educational and brushing programme to those learners and teachers at schools which were not exposed to the programme.

## **2.11 OBJECTIVES**

- a. To assess the oral health knowledge, attitudes and practices of 10-12 year-old primary school learners and teachers.
- b. To identify enabling and inhibiting factors for promoting oral health in these schools.

- c. To determine whether the school environment is conducive to oral health promotion.
- d. To establish whether there are any health promotive or educational policies in the schools.

## **2.12 ETHICAL CLEARANCE.**

Ethical clearance was received from the committee for research on human subjects of the University of the Witwatersrand (Ref R14/49 see Appendix).

## **CHAPTER 3**

### **3.0 MATERIALS AND METHODS**

This is a comparative Knowledge, Attitude and Practice (KAP) study in which the knowledge, attitudes and practices of learners and their teachers in two schools which had a preventive, educative and brushing programme were compared with those of learners and teachers in two schools that were not part of the programme. The study was carried out utilising two methodologies.

- (i) Questionnaires for the learners.
- (ii) Focus group discussions for the teachers.

### **3.1 STUDY POPULATION**

The study population was A total of 3955 learners from eleven schools in district C3 of Mofolo. Four of the schools were exposed to the preventive, educative and brushing programme and seven of them were not (see Appendix I); 1447 learners were exposed to the programme and 2170 were not.



### **3.2 SAMPLE SIZE CALCULATION**

A sample size of three hundred and thirty learners was calculated using a computer statistical programme, (SISA) which was adequate for statistical significance. Assuming the proportion of the learners (as a percentage) of those who have acceptable oral health knowledge, attitudes and practices to be 30 percent, and wanting to be 95 percent sure that the sample estimate was within 5 percent of the population value, the use of a computer tables gave a minimum sample of 323. This number was increased to 336 to allow for withdrawals. All the teachers from the participating grades were included for the focus group discussions.

### **3.3 SAMPLING METHOD**

Two schools that were exposed to the preventive, educative and brushing programmes were chosen using a simple random sampling method on the four schools that were exposed to the programme. Similarly, two schools were randomly selected from the seven schools that were not exposed to the programme.

### **3.4 SAMPLE SIZE**

Three hundred and thirty-six primary schoollearners aged 10-12 years of age were assisted in completing questionnaires. One hundred and seventy-two learners were from the two schools which were part of the programme (Itekeng and Vukani). Eighty-six learners from each of the two schools completed questionnaires. One hundred and sixty-four learners were from the two unexposed schools.

Seventy-nine learners were from Tshedimoso and eighty-five were from Emsebeni Primary schools.

Thirty teachers, seven from each of the two exposed schools and eight from each of the two unexposed schools took part in the focus group discussions.

The participants talked to one another under the guidance of a facilitator (the principal investigator). The purpose was to generate relevant ideas and information around a pre-arranged topic to provide insight into the attitudes, perceptions and opinions of the participants.

## **3.5 MEASUREMENT**

### **3.5.1 Questionnaires**

A twenty-eight item questionnaire that covered aspects relating to demographics, oral health knowledge, attitudes and practices was administered to learners selected for the study (Appendix IV).

Most of the questions were closed-ended and a few were open-ended alternatives. The questionnaire determined responses in regard to tooth brushing, family structure, diet (specifically sugar consumption) and utilisation of dental services. The questionnaires were administered by two trained and calibrated research assistants. All the questions were in English but issues raised by learners in their home language were clarified by the assistants. The questionnaire was piloted on two of the excluded schools.

### **3.5.2 Focus Group Discussions**

Four focus group discussions (one at each school) with seven teachers from each school were held with regard to oral hygiene and care and the school environment. Two principals also attended the discussions at their schools. The discussions were conducted in English. The facilitator (the principal investigator of this study) worked with a pre-established list of points (Appendix II). The research assistant took notes of points raised and discussed. The topics that were discussed were:

- General oral health knowledge and practices of teachers
- Training in oral health education for teachers
- Community dental services
- School oral health programmes
- School environment

The sessions were not tape-recorded because all teachers did not want this.

### **3.5.3 Data Analysis**

Data was captured using Micro Soft Excel and responses to the questionnaire were coded and analyzed using SAS version 8 statistical programme.

Data from the focus group discussions was analyzed by identifying common responses and themes.

Comparisons were then made between responses of the learners and teachers from the four different schools and then between the two school categories (exposed and unexposed to the programme).

### **3.5.4 Statistical Testing**

The Georgetown Linguistics Web Chi-square Calculator was used for statistical analysis. A chi-square was said to be significant at the 5 percent level if p value was less than 0.05.

## CHAPTER 4

### 4.0 RESULTS

This section deals with responses to the questionnaires which explored different dimensions of knowledge, attitudes and practices with regard to oral health as well as the school environment.

For the purposes of analysis, the two schools which were not exposed to the preventive, educational and toothbrushing programme were combined as were the other two schools which were exposed. There were no statistically significant differences within each category.

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In some of the tables, not all the questions were answered by the learners and in some cases more than one response to a particular question was given. Hence the different total values in the various tables may have been due to the learners not understanding the questions and or, simply not responding to questions.

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# PART I

## 4.1 DEMOGRAPHIC INFORMATION

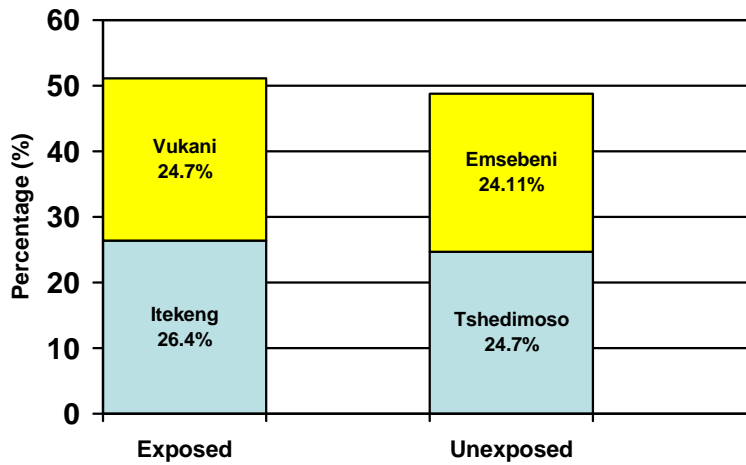


Figure 4.1: Percentage distribution of 10-12 year-old learners by school category

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Figure 4.1 graphically displays a comparable percentage distribution of 10-12 year-old learners by school category. The learners from the exposed schools (Vukani and Itekeng) constituted 51.19 percent of the total number of learners while those from the unexposed schools (Emsebeni and Tshedimoso) constituted 48.81 percent of the total number of learner.

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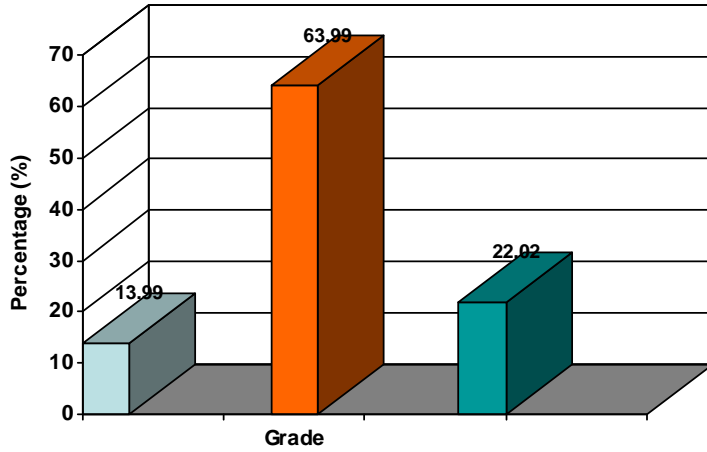


Figure 4.2: Percentage distribution of 10-12 year-old learners by grade

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The majority of learners were in Grade 4 and the least number of pupils in Grade

3.

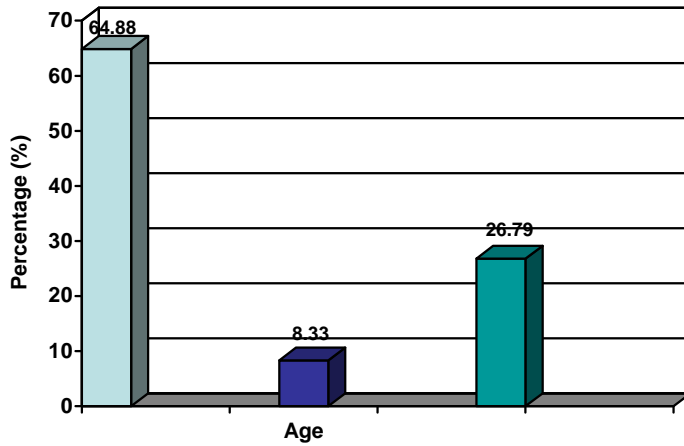


Figure 4.3: Percentage Distribution of 10-12 year-old Learners by Age

The majority of learners were 10 years old. Few (8.33 percent) were 11 years old and almost 27 percent were 12 years old.

**Table 4.1: Family Structure by School Category**

Who the Learners Stay with at Home	Emsebeni & Tshedimoso (UE)	Itekeng & Vukani (E)	Total
Mother & Father (no)	61	66	127
(%)	36.74	38.5	37.46
Mother only (no)	67	65	132
(%)	40.36	37.57	38.93
Father only (no)	6	9	15
(%)	4.21	5.78	5.01
Others (no) eg: granny, sister, brother or aunt (%)	30	32	62
(%)	18.67	18.49	18.58
<b>TOTAL (no)</b>	<b>164</b>	<b>172</b>	<b>336</b>
<b>(%)</b>	<b>100</b>	<b>100</b>	<b>100</b>

DF = 3

Chi-square = 0.628

P > 0.05

Thirty-seven percent of learners from the exposed schools and 40 percent from the unexposed schools said they stayed with their mother only.

Comparable percentages i.e. 36.74 percent from the unexposed schools and 38.15 percent from the exposed schools said they stayed with both their father and mother.



Only 18 percent of learners from either category said they stayed with others like granny, sister or brother.

**Table 4.2: Parent’s Employment Status by School Category**

Type of Employment	Emsebeni & Tshedimoso (UE)	Itekeng & Vukani (E)	Total
Formal (no)	46	65	111
(%)	28.04	37.79	33.03
Informal (no)	80	64	144
(%)	48.78	3.20	42.85
<b>TOTAL (no)</b>	<b>126</b>	<b>129</b>	<b>255</b>
<b>(%)</b>	<b>76.82</b>	<b>75</b>	<b>75.89</b>

DF = 1

Chequered = 499

P < 0.05 (Significant)

Over 37 percent of learners from the exposed schools said their parents were in formal employment and a similar percentage (37 percent) said their parents were in informal employment.

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From the unexposed schools, only 28 percent of learners said their parents were in formal employment and 48 percent in informal employment. There was a statistically significant difference between the two school categories ( $p < 0.05$ ).

**Table 4.3: Housing Status by School Category**

Type of Housing	Emsebeni & Tshedimoso (UE)	Itekeng & Vukani (E)	Total
Flat (no)	13	22	35
Flat (%)	7.92	12.76	10.41
Stand alone house (no)	125	140	265
Stand alone house (%)	76.21	81.30	78.86
Shack/Informal (no)	26	10	36
Shack/Informal (%)	15.85	5.81	10.71
<b>Total (no)</b>	<b>164</b>	<b>172</b>	<b>336</b>
<b>Total (%)</b>	<b>100</b>	<b>100</b>	<b>100</b>

DF = 2

Chi-square = 10.08

P < 0.05 (significant)

The majority of learners from both categories (exposed schools 81.39 percent and unexposed schools 76.2 percent) said they stayed in a stand alone house.

Only 5 percent from the exposed schools said they stayed in a shack as opposed to 15.85 percent from the unexposed schools.

There was a statistically significant difference between the two school categories.

## 4.2 KNOWLEDGE

**Table 4.4: Source of First Learning about Tooth Care by School Category**

Source of Learning	Emsebeni & Tshedimoso (UE)	Itekeng & Vukani (E)	Total
At home (no)	157	167	324
(%)	96.31	96.53	96.02
At school (no)	5	6	11
(%)	3.06	3.46	3.27
At dental clinic (no)	1	0	1
(%)	0.61	0	0.29
<b>Total (no)</b>	<b>163</b>	<b>173</b>	<b>336</b>
<b>(%)</b>	<b>100</b>	<b>100</b>	<b>100</b>

DF = 2

Chi-square = 110

For significance at the 0.05 level, chi square should be greater than or equal to 5.99

P > 0.05 (not significant)

The vast majority (96 percent) of learners first learnt about tooth care at home.

And only 3 percent mentioned school.

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**Table 4.5: Knowledge of Flouride by School Category**

<b>Knowledge of Flouride</b>		<b>Emsebeni &amp; Tshedimoso (UE)</b>	<b>Itekeng &amp; Vukani (E)</b>	<b>Total</b>
Yes	(no)	1	2	3
	(%)	0.61	1.16	0.8
No	(no)	162	169	331
	(%)	99.28	98.8	99.10
<b>Total</b>	<b>(no)</b>	<b>163</b>	<b>171</b>	<b>334</b>
	<b>(%)</b>	<b>100</b>	<b>100</b>	<b>100</b>

DF = 1

Chi-square = 0.29

For significance at the 0.05 level, chi-square should be greater than or equal to 3.84.

P > 0.05 (not significant)

Over 98 percent of learners from both school categories had never heard of fluoride.

### 4.3 ATTITUDES

**Table 4.6: Reasons for Not Going to Dentist by School Category**

Reason for not Visiting Dentist	Emsebeni & Tshedimoso (UE)	Itekeng & Vukani (E)	Total
Afraid of injections (no)	13	5	18
(%)	11.81	3.93	7.59
Nothing wrong with my teeth (no)	52	71	123
(%)	47.27	55.90	51.80
Person who looks after me is busy (no)	44	47	91
(%)	40.00	37.00	38.39
It costs too much (no)	1	4	5
(%)	0.90	3.14	2.10
<b>Total (no)</b>	<b>110</b>	<b>127</b>	<b>237</b>
<b>(%)</b>	<b>100</b>	<b>100</b>	<b>100</b>

DF = 3

Chi-square = 7.20

For significance at the 0.05 level, Chi-square should be greater than or equal to 7.82.

P > 0.05 (not significant)

Over half the learners from the exposed schools (55.90 percent) and almost half of those from the unexposed schools (47.27 percent) said they did not go to the dentist because there was nothing wrong with their teeth.

Forty percent from the unexposed and 37 percent from the exposed said they did not go to the clinic because their parents were busy.

There was no statistically significant difference between the two school categories.

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**Table 4.7: Frequency of Getting Lunch Money from Parents by School Category**

Frequency of Getting Lunch Money		Emsebeni & Tshedimoso (UE)	Itekeng & Vukani (E)	Total
Yes, all the time	(no)	70	58	128
	(%)	42.94	33.52	38.09
Yes, sometimes	(no)	67	89	156
	(%)	41.10	51.44	46.42
No, never	(no)	26	26	52
	(%)	15.95	15.02	15.47
Total	(no)	163	173	336
	(%)	100	100	100

DF = 2

Chi Square = 3.93

For significance at the 0.05 level, chi square should be greater than or equal to 5.99

P > 0.05 (not significant). There was no statistical difference between the two categories.

Fifteen percent of learners from both school categories said they were never given lunch money by their parents and guardians.

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#### 4.4 PRACTICES

**Table 4.8: Last Dental Visit by School Category**

Dental Visit	Emsebeni & Tshedimoso (UE)	Itekeng & Vukani (E)	Total
Never been to dentist (no)	108	107	215
(%)	65.85	62.20	63.98
Last 6 months (no)	19	17	36
(%)	11.58	9.88	10.71
More than a year (no)	37	48	85
(%)	22.56	27.90	25.29
<b>Total (no)</b>	<b>164</b>	<b>172</b>	<b>336</b>
<b>(%)</b>	<b>100</b>	<b>100</b>	<b>100</b>

DF = 2

Chi Square = 1.34

For significance at the 0.05 level, chi-square should be greater than or equal to 5.99

P > 0.05 (not significant)

A majority of learners (65 percent) from the unexposed and 62 percent from the exposed schools had never visited a dentist.

Only 9 percent of learners from the exposed schools had been to a dentist in the past six months as opposed to 11.68 percent for the unexposed.

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There was no statistically significant difference between the two school categories (p > 0.05).

**Table 4.9: Reason for Last Dental Visit by School Category**

Reason for Last dental Visit	Emsebeni & Tshedimoso (UE)	Itekeng & Vukani (E)	Total
Check up (no)	5	1	6
(%)	8.9	1.63	5.12
To clean my teeth or straighten (no)	5	1	6
(%)	8.9	1.63	5.12
I had a toothache (no)	46	59	105
(%)	82.13	96.72	89.74
<b>Total (no)</b>	<b>56</b>	<b>61</b>	<b>117</b>
<b>(%)</b>	<b>100</b>	<b>100</b>	<b>100</b>

DF = 2

Chi-square = 6.74

P < 0.05 (significant)

Of those that had been to the dentist, 96.72 percent from the exposed schools and 82.14 percent from the unexposed schools had visited the dentist because of a toothache in contrast to only one percent from the exposed and 8 percent from the unexposed who had visited the dentist for a routine check-up.

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**Table 4.10: Frequency of Taking Lunch from Home by School Category**

Frequency of Taking Lunch Box to School	Emsebeni & Tshedimoso (UE)	Itekeng & Vukani (E)	Total
(no) Yes, all the time	34	35	69
(%) Yes, all the time	20.00	20.58	20.53
(no) Yes, sometimes	46	72	118
(%) Yes, sometimes	27.87	42.10	35.11
(no) No, never	85	64	149
(%) No, never	51.51	37.42	44.34
<b>(no)</b> <b>Total</b>	<b>165</b>	<b>171</b>	<b>336</b>
<b>(%)</b>	<b>100</b>	<b>100</b>	<b>100</b>

DF = 2

Chi-square = 8.59

P < 0.05 (significant)

Slight more than half the learners from the unexposed schools (51.51 percent) said they never took a lunch box to school, compared to 37.42 percent from the exposed schools. Twenty percent from both school categories said they took a lunch box to school all the time.

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There was a statistically significant difference between the two school categories.

**Table 4.11: Toothbrush Ownership by School Category**

<b>Toothbrush Ownership</b>	<b>Emsebeni &amp; Tshedimoso (UE)</b>	<b>Itekeng &amp; Vukani (E)</b>	<b>Total</b>
Yes (no)	160	170	330
(%)	98.15	98.26	98.21
No (no)	3	3	6
(%)	1.84	1.73	1.76
<b>Total (no)</b>	<b>163</b>	<b>173</b>	<b>336</b>
<b>(%)</b>	<b>100</b>	<b>100</b>	<b>100</b>

DF = 2

Chi Square = 0.0054

For significance at the 0.05 level, chi-square should be greater than or equal to 3.84

P > 0.05 (not significant)

The vast majority of learners (over 98 percent) from both categories said they owned a tooth brush.

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There was no statistically significant difference between the two school categories.

**Table 4.12: Items Used for Tooth Cleaning by School Category**

Items Used for Tooth Cleaning	Emsebeni & Tshedimoso (UE)	Itekeng & Vukani (E)	Total
(no) Tooth brush & Paste	162	90	252
(%)	81.40	50.56	66.84
(no) Toothbrush without paste	0	18	18
(%)	0	10.11	4.77
(no) Other e.g. soap, ash, water	37	70	107
(%)	18.59	39.52	28.38
<b>Total</b> <b>(no)</b>	<b>199</b>	<b>178</b>	<b>337</b>
<b>(%)</b>	<b>100</b>	<b>100</b>	<b>100</b>

DF = 2

Chi-square = 47.72

P < 0.05 (significant)

The majority of learners from the unexposed schools (81.40 percent) said they brushed their teeth with a toothbrush and toothpaste in contrast to 50 percent from the exposed schools; 39 percent of learners from the exposed schools and 18.50 percent from the unexposed schools used other non-conventional items like soap and ash. There was a statistically significant difference between the two school categories.

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**Table 4.13: Daily Tooth brushing by School Category**

<b>Daily Tooth Brushing</b>	<b>Emsebeni &amp; Tshedimoso (UE)</b>	<b>Itekeng &amp; Vukani (E)</b>	<b>Total</b>
Yes, always (no)	70	69	139
(%)	42.68	40.11	41.36
No, never (no)	4	0	4
(%)	2.43	0	1.19
Sometimes (no)	90	103	193
(%)	54.87	59.88	57.44
<b>Total (no)</b>	<b>164</b>	<b>172</b>	<b>336</b>
<b>(%)</b>	<b>100</b>	<b>100</b>	<b>100</b>

DF = 2

Chi-square = 4.70

For significance at the 0.05 level, chi square should be greater than or equal to 5.99

P > 0.05 (not significant).

Only 40 percent of learners from both categories of schools said they brushed their teeth all the time.

There was no statistically significant difference between the two categories of schools.

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**Table 4.14: Frequency of Tooth Brushing by School Category**

<b>Frequency of Tooth Brushing</b>	<b>Emsebeni &amp; Tshedimoso (UE)</b>	<b>Itekeng &amp; Vukani (E)</b>	<b>Total</b>
Once a day (no)	80	99	179
(%)	50.63	61.11	55.93
Twice a day (no)	36	42	78
(%)	22.78	25.92	24.37
Once a week (no)	40	18	58
(%)	25.31	11.11	18.12
<b>Total</b> <b>(no)</b>	<b>158</b>	<b>162</b>	<b>320</b>
<b>(%)</b>	<b>100</b>	<b>100</b>	<b>100</b>

DF = 3

Chi-square = 10.974

P < 0.05 (significant)

For purposes of analysis the categories once a day and twice a day were combined and also once a week and once in two weeks were combined.

From the exposed schools 87 percent of learners said they brushed their teeth once or twice a day as opposed to 72 percent from the unexposed schools.

There was a statistically significant difference between the two categories of schools.

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**Table 4.15: Snacks Bought at School by School Category**

Snacks Bought		Emsebeni & Tshedimoso (UE)	Itekeng & Vukani (E)	Total
Fruit	(no)	14	7	21
	(%)	7.77	2.36	4.41
Fruit juice or Fizzy drinks like Fanta	(no)	101	124	225
	(%)	56.11	41.89	47.26
Sweets & Cakes	(no)	65	165	230
	(%)	36.11	56.74	48.31
<b>Total</b>	<b>(no)</b>	<b>180</b>	<b>296</b>	<b>476</b>
	<b>(%)</b>	<b>100</b>	<b>100</b>	<b>100</b>

DF = 2

Chi-square = 21.14

P > 0.05 (not significant)

The majority of learners from both categories (exposed schools 55.70 percent) bought sweets and cakes at school, 56 percent from the unexposed schools bought fruit juices and fizzy drinks at school.

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- Deleted: (56 percent)

There was no statistically difference between the two school categories.

**Table 4.16: Sugar Consumption by School Category**

<b>Spoons of Sugar Taken with Tea, Milk or Cereal</b>	<b>Emsebeni &amp; Tshedimoso (UE)</b>	<b>Itekeng &amp; Vukani (E)</b>	<b>Total</b>
I don't take sugar (no)	4	1	5
(%)	30.03	0.66	1.77
1-2 spoons (no)	51	80	131
(%)	38.63	53.33	46.45
3 or more spoons (no)	77	69	146
(%)	58.33	46	51.77
<b>Total (no)</b>	<b>132</b>	<b>150</b>	<b>282</b>
<b>(%)</b>	<b>100</b>	<b>100</b>	<b>100</b>

DF = 2

Chi-square = 7.53

P < 0.05 (significant)

Almost 60 percent from the unexposed schools reported that they took more than three spoons of sugar for hot drinks or cereal as opposed to the 46 percent from the exposed schools.

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There was a statistically significant difference between the two categories of schools.

## PART II

### 4.5 RESULTS

This section deals with results from the four focus group discussions. Thirty teachers participated in the discussions ; seven were from Itekeng and Vukani primary schools, eight from Emsebeni and Tshedimoso primary school.

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The results of the focus group discussion may be biased because some of the teachers were quite vocal and dominant and may have influenced the other teachers' opinions. The investigator, however, made every effort to get every ones opinion.

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The following is a discussion of the twelve common themes which were identified by the facilitator.

The discussions were conducted using a pre-established list of points found in the focus group discussion guidelines (Appendix II).

#### 4.5.1 Knowledge of Oral Health

The ideas presented by each group were very similar and all the teachers displayed a comparable level of knowledge regarding oral health. The source of



their knowledge was mainly the media, from clinics, literature on dental products like toothpaste and science lessons from school days.

The teachers' understanding of oral health was having clean teeth, fresh breath, clean tongue, good gums, no tooth decay and no infections of the throat. They all thought that oral health was important for an individual's well-being.

Their perception of oral disease was; having halitosis, dental caries, abscesses in the mouth, bleeding gums, mobile teeth, sensitive teeth, staining of teeth, mouth ulcers and plaque.

#### **4.5.2 Causes of Poor Oral Health**

All the teachers strongly believed that poor eating habits were the root cause of poor oral health. They highlighted a few things like eating sweets, chocolates and toffees frequently to be the causes of poor oral health.

They emphasized that sweets to suck were better than sweets to chew, singling out toffees as the most dangerous because they stick onto the teeth and eventually cause tooth mobility. They also pointed out that sweets have their worst effects when eaten just before bedtime. However, they did not think eating other sugary snacks in-between meals was harmful.

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### 4.5.3 Good Oral Health Practices

The teachers suggested the following measures for maintenance of good oral health:

- Brushing teeth regularly after meals.
- Brushing teeth first thing in the morning and at bedtime.
- Eating calcium-containing foods like milk, cheese, fish, eggs, fruits and vegetables.
- Brushing teeth for about five minutes with a soft brush and toothpaste in circular motions.
- Brushing the tongue with a soft brush.
- Rinsing the mouth with clean water.
- Chewing gum for fresh breath.
- Visiting the dentist once a year or as soon as one notices a problem with the teeth.
- One teacher singled out fluoride-containing toothpastes as being the best but did not know why fluoride is good for teeth.

None of the teachers mentioned the importance or use of dental floss and mouth rinses.

Most of the teachers (80 percent) said they knew that overnight feeding bottles caused tooth decay but only if they were not properly sterilized or if old teats

were used. They did not know the danger of sugar containing drinks in bed-time or over night baby bottles. All the teachers thought children aged two years and below did not have to care for their teeth.

#### **4.5.4 Oral Health Education in the Schools**

The teachers said dental health education was part of the school curriculum as part of health sciences and they all taught their learners the following:

- Hot drinks cause bad breath and cracks in the teeth.
- Too much sugar and sweets cause tooth decay.
- Hot drinks should not be followed by cold drinks or vice versa as it causes tooth cracks.
- Always drink cold water after food.
- Avoid chewing bones.
- Avoid sucking ice blocks.
- Brush your teeth every day, first thing in the morning and before going to bed.
- Do not put sharp objects in your mouth.
- Every child should have a toothbrush.
- Eating hot chilli causes swelling of gums.
- Too much fluoride in water discolors teeth.
- Eat an apple a day to keep the dentist away.

All the teachers believed they should play an important role in passing on oral health information to the learners and expressed willingness to learn more and in turn teach their learners.

#### **4.5.5 Oral Health Education at Home**

The teachers said they taught their own children at home as well but agreed that they failed when it came to putting all into practice. They said they gave their children money for snacks at school despite the knowledge that the children only bought sweets and cakes. They also said they gave their babies overnight bottles containing milk.

#### **4.5.6 Training on Oral Health**

None of the teachers had received any formal training in oral health. However, they had received some information from:

- Nurses who visit the schools.
- Media.
- Nurses and dentists at the clinic.
- Writing on toothpaste packaging.

The information received was on how to brush teeth and what to use i.e. soft brush with fluoride-containing toothpaste.

#### 4.5.7 Community Dental Services

All the teachers were not satisfied with the dental services in their community.

They also said the private clinics were too expensive. They felt that government clinics were unacceptable, because of:

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- Very long queues.
- Poor attitudes of the nurses.
- Poor dentistry as evidenced from the cries and screams inside the clinic.
- Lack of doctors and medicines at the clinics.
- They thought only extractions were done at the clinics.

#### 4.5.8 School Policies on Oral Health

There were no specific school policies regarding health promotion in general in all four schools except that canteens on the school premises were not allowed. However, learners bought food from vendors who sold outside the school fence. It was agreed to that the teachers in charge were to see to it that the vendors brought clean, healthy food, but this was difficult to implement.

#### 4.5.9 School Oral Health Programmes

The following were the existing programmes reported by the teachers:

- The preventive, educative and brushing programme that was run by Gauteng Oral Health Central Wits (i.e. for Itekeng and Vukani primary schools).
- Oral health education was part of the school curriculum for the foundation phase in grade one up to grade three for all the schools. However, the two schools that were part of the preventive, educative and brushing programme were dissatisfied with the programme as oral hygienists only dropped off toothbrushes and paste [at the school](#) and did nothing else.

#### **4.5.10 School Environment**

The teachers thought the environment at their school was not conducive to oral health because vendors sold sweets to the children and there was dumping of rubbish around the school. The teachers said they were unable to control what the vendors sold to the children.

#### **4.5.11 Barriers to Oral Health Promotion**

The teachers perceived the following as barriers to promoting oral health at their schools:

- No funds for buying brushes and toothpaste.
- Lack of knowledge on the parents' and teachers' part regarding oral health.
- Welfare problems. Learners came from very poor homes where they could not afford toothbrushes, toothpaste or even healthy food.

#### **4.5.12 Recommendations**

The teachers finally gave the following recommendations:

- Promotion of workshops and short courses for teachers and parents/guardians.
- Preventive, educative and brushing programme to be for all grades not only lower grades.
- Dentists should come up with ways to lessen people's fear of dentists and should visit schools regularly.
- Government should allocate more funds to oral health education.
- Government should provide toothbrushes and toothpaste to all primary schools.
- Department of oral health should design compulsory school health policies for all schools.
- Each school should have a small clinic on school premises.

## CHAPTER 5

### 5.0 DISCUSSION

#### 5.1 DEMOGRAPHIC INFORMATION.

##### 5.1.1 Family Structure

Results from Table 4.1 show a high percentage of learners that stayed with their mother only. A considerable number of learners said they stayed with their granny only. Gilbert's case study on social differentials in Soweto<sup>2</sup> showed a high percentage of single mothers (about 40 percent), which is quite comparable to the percentage in the current study. This situation highlights the importance of education for mothers and grannies, as they are very influential in the children's lives and should therefore be considered in health promotion programmes.

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Single parenthood, especially among the under privileged, may pose an additional challenge especially related to lack of adequate time and money.

Single parents and or grannies may also not have enough time to take care or even teach their children since they take on the roles of both parents. A single income may also not be enough to cover the necessities like healthy food, tooth paste and tooth brushes or transport money for routine dental visits as the main focus is on survival.

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All these social factors need to be considered when analyzing knowledge, attitudes as well as health practices and consequently when planning health promotion programmes.

A review on dietary determinants of dental caries and dietary recommendations for pre-school children in Maryland, USA recommends that nutrition education and counseling for the purposes of reducing caries in children is aimed at teaching parents the importance of reducing high frequency exposures to sugars<sup>63</sup>.

### 5.1.2 Parents'/Guardians' Employment Status

Results from Table 4.2 show that most of the learners fell under the lower income bracket and this could have had a negative effect on their knowledge, attitudes and oral health practices.

A survey of Soweto by Ncala in 1981<sup>1</sup> found that there were different levels of socio-economic development but the majority of the population fell in the lower income groups. This was still the same according to the 2001 population census. Gilbert and Soskolne<sup>2</sup> in their comprehensive social survey of Soweto in 1997 reported a generally low income level. The poorest sections were the informal settlements and hostels.

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There was a statistically significant difference in parent's employment status between the two school categories. More parents for the exposed schools were reportedly in formal employment and the ones in the unexposed schools were mainly in informal employment. This, however, did not translate into differences in knowledge, attitudes or practices of the learners.

The lack of difference may have been due to unreliable information as many learners were not sure what their parents did for a living.

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Income as well as sustainable resources are some of the prerequisites for health. They play a big role in patterns of health behaviour as well as knowledge and attitudes towards health as parents cannot afford healthy food and other essentials like toothpaste and toothbrushes. The employment status of parents and guardians therefore is closely linked to the oral health knowledge, attitude and behaviour of the children<sup>2</sup>.

The teachers in their focus group discussions also highlighted the poverty issue as an inhibiting factor to oral health promotion in the schools.

Lack of a disposable income from regular employment could further inhibit the purchase of toothpastes and toothbrushes as well as utilizing dental services

This could be addressed by a multi sectoral approach to health promotion, involving other sectors like the Welfare department, non-governmental

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organizations as well as religious groups in order to adequately deal with all the social factors.

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### 5.1.3 Housing Status

A significantly higher number and percentage of learners from the unexposed schools than the exposed schools stayed in shacks or other informal dwellings. One would expect poorer knowledge, attitudes and practices than the learners from the exposed schools due the broad negative health consequences associated with unemployment, poor housing, lack of food, sanitation, clean water and sustainable resources in such situations. In this study, the knowledge, attitudes and practices of learners who stayed in shacks were just as poor as those of learners who stayed in a flat or stand alone houses.

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Thus although the housing status varied, most of the families generally were grouped in the same social economic bracket and faced similar challenges.

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This pattern of housing is very similar to that reported in Gilbert's case study on social differentials in Soweto<sup>2</sup>.

In the above survey<sup>2</sup> the majority of the population (57percent) lived in council houses, 20 percent in shacks and backyard structures, six percent informal settlements and four percent in hostels.

Shelter is one of the prerequisites for health and therefore these results emphasize broader health consequences that are usually associated with unemployment, poor housing, poor sanitation and lack of clean water.

## 5.2 KNOWLEDGE.

### 5.2.1 Source of First Learning about Tooth Care

Table 4.4 shows that the vast majority of learners from both school categories first learnt about tooth care at home. A negligible percentage mentioned school as their source.

This result confirms the teachers' complaints during the focus group discussions. They complained that the oral hygienists who run the tooth brushing programme simply dropped off toothbrushes and toothpaste at the schools and did not spend time teaching the children about tooth care.

Similar to the current study, results from the South African National Oral Health Survey of 1988/89<sup>45</sup> showed that the source of oral health information mostly mentioned was the home. The second most important source was teachers at school and the third was media.

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These results also highlight the importance of home and schools as places of learning and reinforcement of health messages and practices.

Contrary to the above studies, a study by D'Almeida<sup>14</sup> revealed that 48 percent of Japanese junior school children identified the school as the main source of oral health information.

Gilbert et al<sup>33</sup>, in their study on school children in Riverlea, Johannesburg also identified the school as the major source of health knowledge. Friends and relatives were also mentioned.

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Several studies<sup>37-47</sup> have shown the school system as an important and practical setting for implementing preventive programmes through regular learning and constant reinforcement in an environment that is familiar to the children.

There are conflicting ideas on mass media campaigns. In a pilot health programme to improve dental health knowledge and behavior of learners<sup>41</sup>, the percentage of learners who reported using recommended amounts of tooth paste and brushing for the recommended time and frequency was increased following television campaigns in addition to dental nurse instruction.

On the contrary, a systematic review of the effectiveness of oral health promotion aimed at improving oral health<sup>48</sup> concluded that chair side oral health promotion has been shown to be effective consistently than other methods but mass media programmes have not been shown to be effective.

Results of the current study show that the educational and tooth brushing programmes that have been in place have not had any positive impact on the children's oral health knowledge. There is need for re designing these programmes in order for them to make a difference.

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Results from the focus group discussions showed the teachers, too, displayed poor levels of oral health knowledge. This was not surprising as they had received no special oral health education.

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### 5.2.2 Knowledge of Fluoride

Table 4.5 shows that the vast majority of learners in both school categories had never heard of fluoride. The teachers too did not know much about fluorides.

Several studies carried out in South Africa regarding public knowledge of water fluoridation showed poor knowledge of fluoride within the general population<sup>49-52</sup>.

A study done on public perceptions of water fluoridation in South Africa<sup>50</sup> showed that only 23 percent of respondents had heard or read about water fluoridation. Of these, only almost a third said they obtained their information from schools or community networks, while 60 percent mentioned radio, print media or television. Only 25 percent correctly recognized the protection of teeth as the purpose of fluoridation, while 40 percent believed the purpose of water fluoridation was to purify it. More than 60 percent of respondents were in favour of water fluoridation

<sup>50,52</sup>. However in view of the consistent poor knowledge of fluoride in the community such responses must be treated with caution

Similar results were obtained from other studies in South Africa<sup>49,51,52</sup>. It was further shown that knowledge of water fluoridation increased with educational level, with a range of 13.5 percent in the grades 0 – 5 group to 59 percent in the grade 12 plus group<sup>49,51</sup>.

These results differ from those in the D’Almeida study<sup>14</sup> where 11 percent of Japanese children indicated knowledge of the benefits of fluoride.

The results show a general lack of knowledge on fluoride in many of South African communities.

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More effective water fluoridation and topical fluoride campaigns are needed as fluoride is the one factor that has been shown beyond doubt to decrease susceptibility to tooth decay<sup>4</sup>.

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### 5.3 ATTITUDES

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#### 5.3.1 Reasons for not visiting the dentist.

The main reason learners did not visit the dentist regularly was their perception that, there was nothing wrong with their teeth.

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Results from the focus group discussions reveal that teachers too did not go for regular dental check ups because of similar perceptions.

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These results are comparable to those by Rudolph et al<sup>45</sup> where respondents did not go to the clinics mainly because of their view that there was nothing wrong with their teeth.

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Similar responses were obtained from other studies in Jordan<sup>19</sup>, and Thailand<sup>15</sup> where the only reason for going to the dentist was due to problems with their teeth.

Regular dental check ups are essential for oral health. Its one of the the four key messages that will influence attitudes and practices of individuals to achieve oral health for life and prevent oral diseases<sup>4</sup>.

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It is recommended that the maximum period between check ups should be one year. Children may need to be seen more frequently (six-monthly) to have them monitored and appropriate oral hygiene advice and early treatment given.

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### 5.3.2 Lunch Money

Over all, many children from all four schools were given lunch money.

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These results are consistent with the information gleaned from the focus group discussions where teachers said they gave their children money for snacks and yet they knew that the children bought sugary snacks with the money. The teachers said they felt powerless because the children demanded and cried for the money.

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These results are also in line with results from a study by Roberts et al<sup>57</sup> that was undertaken to investigate the influence of children on parental decision making in relation to the use of sugary snacks in Manchester, UK. It was found that adults' efforts to limit their children's intake of sweet snacks and drinks were being undermined by earlier influences in the children's lives and by access to money which allowed the children to spend the money as they wished. This was compounded by the provision of additional income mostly from grandparents. Access to money increases the chances of children's intake of sweet snacks and sugary drinks which are detrimental to children's oral health.

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This problem could be prevented by educating parents and grandparents about the dangers of giving money to school children as well as the benefits of preparing healthy packed lunch for them. This could help parents change their attitudes and take more responsibility for their children's health.

## 5.4 PRACTICES

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### 5.4.1 Utilisation of Dental Services

Results from the current study show that the majority of learners had never been to a dentist and the few that had visited the dentist had done so because of a toothache. Very few learners had gone for a routine check up. The same applied to the teachers.

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Similar results were obtained from the South African National Oral Health survey of 1988/89<sup>45</sup>. The black population group displayed a very low level of dental service utilisation. The mean number of visits for black children aged between 3-16 years in the preceding 12 months was 0.21 and that for adults was 0.31.

Regarding reasons for dental visits, 75 percent of black respondents gave symptomatic reasons (i.e. tooth ache, abscess, extraction, broken tooth and gum problem) as their main reasons for dental visits.

Only 11 percent of children between ages 3-16 reported going for regular dental checkups at least once in two years<sup>69</sup>.

Naidoo et al in the South African Demographic and Health survey of 1998<sup>70</sup> also showed poor utilisation of public oral health services. Less than 10 percent of the population utilised oral health services. This under-utilisation was attributed to limited resources and inaccessibility of these services.

Bhayat and Cleaton-Jones in 2003<sup>71</sup> compared Soweto primary dental health services attendance one year before and one year after introduction of free services was compared. There was a 46 percent increase in attendance after free services were introduced with more than six-fold increase in casual attendees (pain and sepsis) than in booked patients (restorative treatment, dentures and orthodontics).

This study clearly showed the effect of improving attendance by making services free but the main motive for attendance remained mainly symptomatic reasons.

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In some cases even poorer patterns of non-utilisation of public oral health care facilities have been observed in other developing African countries.

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In Nigeria, a study by Otuyemi et al<sup>26</sup> on 12 year-old primary school children living in suburban and rural areas showed that overall 83.5 percent of these children had never visited the dentist despite the fact that most of them believed it was necessary to visit the dentist for a check up.

In a household survey of access to and utilisation of emergency oral health care services in rural Tanzania<sup>72</sup>, more than 90 percent of the respondents knew that emergency oral health care was available at the health center but only 40 percent had utilised the services. The reasons given for the non-utilisation were lack of money to pay for transport and treatment (30 percent) and the fear of dental treatment (7 percent of respondents). A similar percentage the respondents in this current study (7.95 percent) also expressed some form of fear in that they expressed a fear of injections.

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In Kenya, a study on 9-15 year-old peri-urban children by Kaimenyi et al showed that only 43.1 percent had visited a dentist before and the main reason was to have a tooth extraction<sup>73</sup>.

Other studies in developing countries in Asia also revealed similar results.

Two studies in the People's Republic of China on 12 year-olds revealed that only 46 percent and in the other study 20 percent of children had seen a dentist in the past year<sup>12,13</sup>.

However in Southern Thailand, Petersen et al did a study on 12 year-olds. Results showed that 66 percent had seen a dentist within the previous year. Like the South African and other African studies the main reasons for going to the dentist were due to problems with their teeth<sup>15</sup>.

Similar trends of utilisation were seen in the Middle East region. In Jordan, 86 percent of school children that were investigated saw a dentist only for symptomatic reasons<sup>19</sup>.

Another study in Saudi Arabia revealed that only 45 percent of children reported annual visits to the dentist for routine dental check up<sup>21</sup>.

In Central America, similar results were obtained from 12 year-old school children. While 65 percent said they went to a dentist, they received an extraction at their last visit. Cost and fear of pain were found to be the common barriers which prevented regular dental attendance<sup>22</sup>.

All these results clearly show that this level of under-utilisation of services is not unique to this study but seems to be a universal problem for all developing communities of South Africa and the world at large.

This poor utilisation of dental services may be due to the high levels of poverty and also misconceptions about the services offered and the general lack of medical and dental health knowledge in the community.

This lack of knowledge about services rendered in the oral health facilities in the community was also displayed by the teachers in their focus group discussions.

There were no significant differences between the schools which were exposed to the preventive, educative and brushing programme and those that were not with regard to the utilization of dental services.

This lack of knowledge could also be attributed to lack of advertising or information in schools and the community at large on services available in their community.

This could provide a good starting point for oral health promotion programmes by first informing the community about oral health services available in their community and involving the entire community particularly the parents and

guardians of these learners into these health educational and promotional programmes.

#### 5.4.2 Dietary Practices

The study revealed a high consumption of sugar and sugary snacks.

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High levels of sugary snacks consumption are highly prevalent and an ever growing phenomena in both developed and developing communities<sup>31</sup>.

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Two studies done in the eighties in South Africa; one in the former Homeland of Transkei and another in Riverlea primary school, Johannesburg revealed high consumption of sugary snacks in-between meals among the children<sup>32,34</sup>. Other studies in Tanzania and Thailand also revealed a high consumption of in-between meals sugary snacks by the majority of children<sup>15,31</sup>.

The high consumption of sugary snacks and sugar among the learners in this study may be explained by reasons similar to those from two studies done in South Africa referred to below.

A study done in Johannesburg on urbanization and cariogenic food habits among four to twenty four month black South African children in rural and urban areas, showed a strong influence of rural/urban environment on specific cariogenic food

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habits among young black South African children. More urban than rural mothers added sugar to their children's pacifiers<sup>58</sup>.

Another study on caries prevalence, patterns of sugar consumption and oral hygiene practices in infancy, revealed that mothers had limited knowledge about oral hygiene and infant sugar consumption. Habits seemed to be influenced by the mothers' sugar consumption habits. Infants were introduced to sucrose containing foods and drinks at the time of eruption of their first tooth<sup>76</sup>.

A three year longitudinal study was carried out with a group of children aged 11 to 15 years residing in non-fluoridated rural communities in south central Michigan. The average consumption of between meal sugars was related to approximal caries increment. A tendency towards more frequent snacks was seen in the high caries children<sup>59</sup>.

The cariogenicity of soft drinks was evaluated in 3194 Americans aged 9 to 29 years and a significant positive association was found between the frequencies of at and between meal consumption of soft drinks and high DMFT scores<sup>56</sup>.

Early childhood caries (ECC) is also associated with the early intake of sugary foods, drinks or snacks and primary prevention of ECC has largely been restricted to counseling parents about caries promoting feeding behaviours<sup>61</sup>.

A study done on caries prevalence and some caries related factors for 12 year old children, showed that caries prevalence was high and 84 to 88 percent of children studied took local sweet snacks, chips and sweet drinks every day<sup>62</sup>.

A follow up study of the caries prevalence of the school children in this study would be beneficial in confirming the effects of the learners' sugar consumption habits and would aid in designing appropriate health education and preventive programmes.

#### **5.4.3 Dental Care/Oral Hygiene Practices**

The results from Tables 4.11, 4.12, 4.13 and 4.14 were rather contradictory. The learners were asked the same questions in different ways and the responses were inconsistent. This made it difficult to draw conclusions from these particular results.

However, more learners from the unexposed schools said they used a tooth brush and tooth paste than from the exposed schools.

More learners from the unexposed schools reported brushing their teeth twice a day than the ones from the exposed schools who mainly brushed once a day. This suggests that the preventive, educational and brushing programme didn't have much effect on the oral hygiene behavioural patterns of the learners from the two exposed schools.



Almost all the learners from both school categories (over 98percent) said they owned a toothbrush. .

Of interest was the number of learners who used other non conventional items like soap and ash which was more likely because of lack of money. The use of non-conventional substances like soap, ash, salt and chewing sticks is common among many rural dwellers in Africa for example in Nigeria<sup>26</sup>, Zanzibar<sup>27</sup> and Tanzania<sup>31</sup>.

It is notable that even when some learners did not have toothbrushes and toothpaste there still seemed to be an effort to keep the mouth clean. This may imply that if toothbrushes and toothpaste were provided, they would probably clean their teeth more effectively.

The results of the current study differ from those from another study in Indonesia<sup>16</sup> which revealed that tooth brushing had significantly improved among children who were exposed to a school based educational programme and who spent time brushing teeth under supervision. Differences in oral health knowledge were apparent between the experimental and control groups but reported habits were the same.

The teachers said they cleaned their teeth twice a day i.e. morning and before going to bed and taught their learners and children at home the same.

These results of the current study are similar to those from several studies on learners oral health practices globally i.e. India<sup>11</sup>, China<sup>12,13</sup>, Thailand<sup>15</sup>, Zanzibar<sup>27</sup>, Kenya<sup>73</sup>, Tanzania<sup>28-31</sup> and South Africa<sup>32-34</sup>. In all these studies the majority of learners reported brushing their teeth once a day.

Brushing teeth with fluoridated tooth paste daily gives a major benefit for prevention of oral diseases<sup>44</sup>.

However, it is important to note that the reported behaviour may not necessarily be the practiced behaviour. Never the less it is helpful to know that learners know what is expected of them which could make the task of motivating them and reinforcing this behaviour a lot easier.

## **5.5 SCHOOL TEACHERS' KNOWLEDGE, ATTITUDES AND PRACTICES**

All the school teachers from both school categories displayed similar knowledge, attitudes and oral health practices. They all displayed poor understanding of oral health. Their attitudes towards oral care too were poor. They said they did not visit the dentist for routine dental check ups. They only visited the dentist for symptomatic reasons only.

Oral health education was part of the curriculum for the foundation phase (grades 1-3) even though the teachers had never received any formal education on oral

health. The only oral health information they had ever received was from print and electronic media and from nurses at clinics.

In spite of all this, the teachers showed a lot of enthusiasm for oral health promotion in their schools and considered it their responsibility to teach their learners about oral health.

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These responses from teachers differ from those from many studies in Africa, Asia, Europe and the Middle East region<sup>9,10,13,18,28,30,36,75</sup> as far as knowledge is concerned.

Teachers generally reported good oral hygiene habits like brushing twice a day with a fluoride toothpaste as well as basic knowledge of causes and prevention of oral disease.

The teachers in the current study though expressed similar sentiments towards oral hygiene instruction to their learners in the above mentioned studies.

Those teachers too were aware of poor oral health within their schools and were willing to take part in oral health education and other oral health promotion programmes.

Two studies<sup>29,76</sup> however demonstrated teachers' unwillingness to commit themselves to giving oral health education lessons to the learners and saw it as the parent's responsibility.

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According to a pilot study on suitability of school teachers as oral health educators in Gazankulu, a rural community in South Africa<sup>77</sup>, the teachers did not meet all the criteria that defined "suitable" oral health educators as they had several deficiencies in oral health knowledge, attitudes and behaviour.

The teachers' enthusiasm and willingness has been utilised successfully in oral health promotion programmes in schools in several countries like Ireland, Canada, Australia and New Zealand<sup>27,36,41,42,43,44</sup>.

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Drawing and learning from these countries' experiences and success could be beneficial in review and probably planning and implementation of our own programmes.

## 5.6 TEACHERS' RECOMMENDATIONS

Some of the recommendations given by the teachers are quite realistic and could be beneficial.

Introduction of compulsory school oral health policies could go a long way in influencing learners practices. Eating habits could be influenced by regulating what can and cannot be sold at and outside school grounds.

Inclusion of basic oral health education in the school curriculum as is first aid, could help improve both teachers and learners oral health knowledge and consequently practices and health.

Oral health education workshops for teachers and the community were highly recommended. These could be carried out on a three monthly basis in collaboration with the health workers and the community leaders.

Provision of free tooth brushes and tooth paste to all the economically disadvantaged schools could be highly beneficial.

Some of the recommendations which were un realistic and un attainable are:

Establishment of clinics at every school is not practically and economically viable.

There is really nothing much dentists can do to lessen peoples' fear of dental treatment. However, oral health education could help reassure frightened individuals.

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## 6.0 CONCLUSION AND RECOMMENDATIONS

### 6.1 CONCLUSION

Results from this study have shown that there was no significant difference in both teachers' and learners' knowledge, attitudes and practices between the two schools that were part of the preventive, educational and tooth brushing programme and the other two schools that were not. Of note were the following:

- a. There were poor utilization patterns of the available dental services.
- b. Both learners and teachers mainly visited the dentist for symptomatic reasons only.
- c. There was a high consumption of sugar and sugary snacks among the learners.
- d. Most learners were given tuck shop money by their parents.
- e. Most learners reported brushing their teeth only once a day i.e. in the morning.
- f. Both the learners and teachers had no knowledge of the benefits of fluoride.
- g. The learners main source of oral health knowledge was from their family members while the teachers mentioned the media.

- h. Lack of knowledge and poverty were the main inhibiting factors to oral health identified in both school categories.
- i. The school and surrounding environment was not conducive to oral health and health in general.
- j. There were no oral health school policies in all four schools.

## 6.2 RECOMMENDATIONS.

There should be integration between oral health and nutritional services, education and research j.e. a multi sectoral approach which is fundamental to the oral health promotion approach.

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Teaching parents and guardians especially mothers and grand mothers about the importance of reducing high frequency exposures to sugars through special community workshops or at dental clinics, community centers, through church groups or door-to-door visits.

Communities should be made aware of the services available and should be involved in health promotion strategies. This could be done through posters and workshops and the media.

There should be a move to put pressure on legislative bodies to implement specific policies regarding oral health promotion especially in schools.

The quality of oral health promotion evaluation research needs to be improved.

It would be beneficial to audit what the oral health services are delivering to the community so as to assess the aims, the inputs and outcomes of the various service packages offered.

Health promotion as a whole should be part of the curriculum at teacher training colleges so that teachers have adequate knowledge and skills to carry out health promotion in their schools otherwise workshops for teachers on oral health promotion could be a good starting point.

Since most of the learners and all the teachers said they brushed their teeth with a toothbrush and toothpaste, full use must be made of the huge potential of toothpaste as a vehicle for both caries and brushing on periodontal disease prevention.

Budget allocations should be made for distribution of free tooth brushes and tooth paste to primary schools.

Restructuring of the current preventive, educational and tooth brushing programmes to a comprehensive school oral package is highly recommended.

Promotion of water fluoridation in schools and the community at large.

Promotion of non cariogenic food stuffs on school premises.



The results of this study merely show self-reported knowledge, attitudes and practices but provide valuable information for future planning of more suitable and sustainable health promotion programmes

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Further studies on oral health status of the learners would give more accurate information on their oral hygiene and dietary practices.

Future studies are highly recommended.

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