PERIODONTAL TREATMENT NEEDS OF PSYCHIATRIC INPATIENTS IN MATHARI MENTAL HOSPITAL.
A COMMUNITY DENTISTRY PROJECT PROPOSAL SUBMITTED IN PARTIAL FULFILLMENT OF THE DEGREE OF BACHELOR OF DENTAL SURGERY.

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TABLE OF CONTENTS

Title page ............................................................i
Table of contents ..................................................iii
Abbreviations .....................................................iv
Summary ..............................................................v
Introduction .........................................................1
Literature review ..................................................3
Statement of the problem ..........................................6
Justification .........................................................6
Objectives ..........................................................6
Study methodology ................................................7
Ethical consideration ..............................................9
Inclusion Criteria ................................................9
Exclusion Criteria .................................................9
Expected benefits ...............................................9
Expected difficulties .............................................10
Budget ....................................................................11
References ..........................................................12
Appendix 1 ............................................................13
ABBREVIATIONS

BDS – Bachelor in Dental Surgery.
SPSS – Statistical Package for Social Sciences.
MSc – Master of Science.
CPITN – Community Periodontal Index of Treatment Needs.
MPH – Master of Public Health.
PGH-STI – Post Graduate Diploma in Sexually Transmitted Infections.
FADI – Fellow of Academy of Dentistry.
PFA – Fellow of Pierre Fauchard Academy.
CAL – Clinical Attachment Loss.
CEJ – Cementoenamel junction.
WHO – World Health Organization.
ABSTRACT

Poor oral hygiene and a high prevalence of periodontal disease are characteristic findings among hospitalized psychiatric patients. This is largely because oral health is ranked low on the priority list in the context of mental illness. However, this should not be the case since oral health is a major determinant of the general health in psychiatric patients.

The aim of this study is to determine the periodontal treatment needs of psychiatric inpatients in Mathari mental hospital. It will be a descriptive cross-sectional study and the Community Periodontal Index of Treatment Needs (CPITN) together with the WHO color-coded probe will be used to assess the extent of tissue destruction and the treatment needs. Simple Random Sampling Method will be used to identify the subjects of this study, who will be all the patients who gave assent to participate. The sample size will be 72 patients.

Ethical clearance will be sought from Kenyatta National Hospital ethical research committee in Kenya.

Information obtained will be useful to caretakers of psychiatric patients to facilitate provision of health care holistically, training dental professionals on the provision of dental care to hospitalized psychiatric patients and formulation of strategies for preventive oral health measures among psychiatric patients.


1.0 INTRODUCTION

Persons with mental handicap often have poor oral hygiene because dental care is complicated by their disability. This commonly results in periodontal disease and caries. In addition their medication may produce adverse oral effects such as gingival enlargement and xerostomia, which complicate dental management by increasing their periodontal treatment needs.

The World Health Organization has defined a handicapped person as 'one who over an appreciable period is prevented by physical or mental conditions from full participation in normal activities of their age groups including those of social, recreational, educational and vocational nature'. Disability is the restriction in performing a function considered normal. The prevalence of disability is estimated at 1.5 to 2 per 1000 live births with intellectual impairment accounting for approximately 0.9 per 1000 and major physical impairments for the remainder. The mentally challenged persons face difficulties in understanding and maintaining good oral hygiene. This results in poor periodontal disease control and concomitant increase in treatment needs. Typical difficulties with dental care of patients with mental impairment include; difficulties in performing routine home oral hygiene, lack of cooperation during routine dental treatment, inability to comprehend the need for treatment, fear, need for sedation or general anaesthesia, oral effects of medication, aggressive behavior and prejudice in health care.

Periodontal disease affects the periodontium, which consists of those tissues that surround and anchor the tooth in the maxillary and mandibular alveolar process. Since the etiology is microbial-plaque, the individual's role in good periodontal health cannot be over-emphasized. This includes adequate mechanical plaque control, routine dental check-ups and strict adherence to recommended oral hygiene practices. Often times the psychiatric patient may not achieve this and even the oral health providers may have difficulties in treating the problem.
Plaque-induced periodontal diseases can be categorized into gingivitis and periodontitis based on the presence or absence of loss of attachment. Gingivitis is the presence of gingival inflammation without loss of connective tissue attachment. It can be categorized as follows; slight, moderate, and severe. These terms are used to indicate the intensity of the cardinal signs of inflammation. Periodontitis is the presence of gingival inflammation where there has been apical migration of junctional epithelium onto the root surface with concomitant loss of connective tissue and bone. The extent of periodontal disease is a general description of its location or distribution throughout the mouth. It is localized if less than 30% of the sites are involved and generalized if more than 30% of the sites are affected. In cases of periodontitis severity is gauged by the amount of clinical attachment loss (CAL) as follows; slight = 1 to 2mm of CAL, moderate = 3 to 4mm of CAL and severe = 5mm or more of CAL. CAL is measured using a periodontal probe and is the distance from the CEJ to the bottom of the probable crevice.

Treatment needs generally refer to professionally determined or normative needs related to the presence of disease.

The Community Periodontal Index of Treatment Needs (CPITN) assesses the extent of tissue destruction and the treatment needs. The aim of this study is to find out the periodontal treatment needs of psychiatric inpatients in Mathari Mental Hospital Nairobi, Kenya, in view of their handicap, which is a major drawback in the provision of oral health care.
2.0 LITERATURE REVIEW

Epidemiology of dental diseases in psychiatric in-patients has not been extensively studied; however several studies have been carried out on the treatment needs and various markers of oral health such as the periodontal status. Davies et al 2000 reported that mentally challenged persons have poor oral hygiene, periodontal disease, missing or discolored teeth and oral malodour which worsen their struggle for social acceptance.

In a study by Wai Kwong Tang et al 2004 among psychiatric in-patients in Hong Kong, China, it was reported that bleeding on probing, calculus, shallow and deep pockets were found in 71%, 71.8%, 72.9% and 28.2% of patients respectively. Moreover, older age and length of illness were significantly associated with poor dental health. In this study it was concluded that Mental health professionals needed to pay more attention to preventive oral health habits of psychiatric patients.

In another study by Angelillo et al 1995 on Dental health and Treatment needs in institutionalized psychiatric patients in Cantazaro, Italy, the caries prevalence, oral hygiene status, periodontal health and the treatment needs were assessed. Of the total sample of 297 subjects, 165 (55.6%) were males, the mean age was 55.1 years, the great majority (90.6%) was able to care for themselves, on average they had been institutionalized for 12.0 years and almost two-thirds were schizophrenic. They did not receive any assistance in daily oral hygiene procedures, only 7.4% had visited a dentist and exclusively for emergency care. Only 0.9% of the entire sample was found with healthy periodontal tissue; bleeding on probing or a higher score was found in 4.6% of examined sextants; calculus in 10.1%; shallow pockets and deep pockets in 19.6% and 64.8% of all sextants. This study revealed extensive unmet treatment needs. In addition it concluded that more coordinated efforts between the social and dental care sector were needed to adequately meet the needs of this disadvantaged group.

A similar study on institutionalized psychiatric patients in India by Kenkre et al 2000 found that only 5.4% reported a healthy periodontium whereas 16.27% required complex periodontal therapy.
In a study on the oral health status and treatment needs in institutionalized psychiatric patients in Davangere India, it was reported that psychiatric patients had a poorer periodontal health status with high treatment needs than the general population. Only 1.9% had healthy periodontal tissues while bleeding on probing, calculus, shallow pockets and deep pockets were found in 10.5%, 40.6%, 35.3% and 7.8% respectively. It also showed that the periodontal status worsened with increasing age, increasing duration of mental illness and among patients who were partially or totally dependent. Furthermore, according to this study, virtually 98.1% of the patients required oral hygiene instructions and 87.6% required oral hygiene instructions and prophylaxis.9

A study whose purpose was to evaluate the periodontal status and treatment needs (by CPITN) of 565 patients hospitalized in a psychiatric facility in Seville was conducted10. The results of this study showed that 31.7% of the patients were edentulous and that 68.3% were dentate. Of the dentate subjects, 8.5% were found to have a healthy periodontium, 14.2% had bleeding on probing, 43.8% had calculus, 24.6% had shallow pockets, and 8.9% had deep pockets. In addition, the severity of periodontal disease increased significantly with age and the length of time of hospitalization. The need for oral hygiene instruction among the dentate population was determined to be 91.5%, and the need for treatment (oral prophylaxis and scaling) was 77.3%

A comprehensive clinical and radiographic exam was conducted on 33% of patients in a large state mental hospital and it was found that extensive unmet needs existed in this population. The major requirements were for prophylaxis, calculus removal, and periodontal therapy. The patients' needs varied depending on several demographic factors, including length of hospitalization and psychiatric diagnoses.11

Oral hygiene, periodontal health and periodontal treatment needs were studied in the dentulous patients (n = 328) of a sample selected to be representative of all institutionalized mentally subnormal persons in Norway aged 5-4512. The average oral hygiene and periodontal health was poor except for patients in a few institutions where the nurses were trained to clean teeth regularly. Increased age, epilepsy, Down's
syndrome and a high degree of mental deficiency were all elements that apparently contributed to impairment of periodontal health and to increased treatment requirements. The preventive programs used in some institutions seemed to be effective. Still better results, they reported, could probably be obtained by the use of dental hygienists.

As evidenced by the above mentioned studies poor oral hygiene and a high prevalence of periodontal disease are characteristic findings in psychiatric patients. Therefore there is need to move with speed and lay down strategies that will consistently monitor the provision of dental services and maintenance of oral health to this underprivileged population. Availing findings on their treatment needs is a step in the right direction.
3.0 STATEMENT OF THE PROBLEM

Improvement of dental care for psychiatric inpatients is crucial in enhancing their physical well being and mental health. However they face many difficulties in understanding and maintaining their oral health hence vulnerable to having unmet treatment needs. Even when they have access to oral health services, the oral health providers may encounter difficulties in recognizing the periodontal treatment needs due to barrier in communication with the patients who may have intellectual and language disabilities.

4.0 JUSTIFICATION OF THE STUDY

The prevalence of periodontal treatment needs among Kenyan hospitalized psychiatric patients is likely to be high but information on this is currently inadequate or unavailable.

5.0 OBJECTIVES

5.1 General objective
- To determine the periodontal treatment needs of psychiatric inpatients in Mathari Mental Hospital.

5.2 Specific Objectives
- To determine the proportion of psychiatric inpatients in Mathari Hospital who require oral health instructions.
- To determine the proportion of psychiatric inpatients in Mathari Hospital who require scaling.
- To determine the proportion of psychiatric inpatients in Mathari Hospital who require complex periodontal therapy.
6.0 STUDY METHODOLOGY

6.1 Variables
   • Independent variables
     1. Gender.
     2. Duration of stay at the institution.
     3. Age.

   • Dependent variables.
     a) Need to improve personal oral hygiene
     b) Need for professional cleaning of teeth, plus improvement in personal oral hygiene
     c) Need for more complex treatment to remove infected tissue.

6.2 STUDY AREA

The study will be carried out in Mathari Mental Hospital, which is the largest mental referral hospital in Kenya. It is situated about 8 kilometers northeast of the capital city of Kenya, Nairobi. It was established in 1910 and provides medical services to psychiatric patients.

6.3 STUDY POPULATION

The study population will be all the psychiatric patients admitted at Mathari Mental Hospital.

6.4 STUDY DESIGN

It will be a descriptive cross-sectional study
6.5 SAMPLING

6.5.1 SAMPLING UNIT

A patient with a psychiatric disorder admitted at Mathari Mental Hospital.

6.5.2 SAMPLING METHOD

Simple Random Sampling method will be used. A table of Random numbers will be used for randomization.

6.5.3 SAMPLE SIZE DETERMINATION

Prevalence of unmet periodontal treatment needs is =95%
C=confidence level
C=95%
Z=1.96, value for 95% confidence level
Sample size, n, \( n = \frac{Z^2p(1-p)}{C^2} \)

\[
n = \left( \frac{1.96}{0.95} \right)^2 \times 0.95 \times 0.05
\]

=72.

6.6 DATA COLLECTION

An intra-oral examination will be carried out using the World Health Organization (WHO) Community Periodontal Index of Treatment Needs (CPITN) color-coded probe. The code is as follows:

<table>
<thead>
<tr>
<th>Findings</th>
<th>Code</th>
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<tr>
<td>Pathologic pockets &gt;= 6 mm deep</td>
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</tr>
<tr>
<td>Pathologic pockets 4-5 mm deep</td>
<td>3</td>
</tr>
<tr>
<td>Supragingival or subgingival calculus</td>
<td>2</td>
</tr>
<tr>
<td>Gingival bleeding after gentle probing</td>
<td>1</td>
</tr>
<tr>
<td>No signs of periodontal disease</td>
<td>0</td>
</tr>
</tbody>
</table>
6.7 DATA ANALYSIS
The results will be analyzed using SPSS 12.0, frequencies will be used to draw graphs and bar charts and chi-square will be determined.

6.8 MINIMIZING ERROR
Training of assistants who will be level III Dental students will be carried out on the data collection procedure. In addition the author will assess the validity and reliability of data collection instruments.

6.9 ETHICAL CONSIDERATION
Ethical clearance will be sought from the Kenyatta National Hospital ethical research committee in Kenya. Written consent to carry out the study will be sought from the Hospital authorities. All the information obtained from this study will be used for the benefit of the community and will be used with absolute confidentiality.

6.10 INCLUSION CRITERIA
All the patients for whom the Hospital authorities gives assent to participate in this study.

6.11 EXCLUSION CRITERIA
The patients for whom the Hospital administration will not give assent to participate in this study.

6.12 EXPECTED PROBLEMS
1. Aggressive patients.
2. Some patients may refuse to co-operate.
3. The author has a limited time to carry out the study.
4. Communication with some patients may be difficult.
6.13 EXPECTED BENEFITS

1. Information can be used by caretakers of psychiatric patients to provide health care holistically.

2. Findings could be used for training dental professionals on the provision of dental care to hospitalized psychiatric

3. Mental Health Professionals could use the information acquired to plan and formulate strategies for preventive oral health measures among psychiatric patients.
### PROPOSED BUDGET

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<th>Unit cost</th>
<th>Quantity</th>
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</tr>
<tr>
<td>Photocopying</td>
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<td><strong>TOTAL</strong></td>
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</tr>
</tbody>
</table>

**COST OF STUDY; 6800 Kshs**

**DURATION OF STUDY ; August – November 2007**
REFERENCES;

1. B. Hunter; Dental Care for the Handicapped (Butterworth and Heinemann 1987)


3. Armitage GC: Development of a classification system for periodontal diseases and conditions, Ann periodontol 4: 1-6,1999


Appendix I

CONSENT FORM;

I am KAARIA MWIRIGI, a level III Bachelor of Dental Surgery student in the University of Nairobi. I am currently carrying out a research project to find out periodontal treatment needs of psychiatric inpatients in Mathari Mental Hospital. The study will be important because it will provide health care planners at Mathari Mental Hospital with valuable information on person power and other resources needed in the provision oral health care.

I understand that I have entered psychiatric patients under my care in this study voluntarily and that I can terminate my participation in the study without any consequences. The participation in the study doesn’t entail any financial benefit. No risk is anticipated for the study. The information given to the researcher will be kept in strict confidence. No information, by which identity of patients can be revealed will be released or published. No information will be used for legal purposes against the proprietors of the hospital.

I ..........................................................do hereby willfully give consent for........................................to participate in this study.

Sign................................. Date......................
CLINICAL EXAMINATION FORM

The Community Periodontal Index for Treatment needs will be used for intra-oral examination.

Age __________________________

Gender __________________________

Medical condition __________________________

Medication __________________________

Duration of stay in the institution________________________

<table>
<thead>
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<th>Parameter</th>
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<th>No</th>
<th>code</th>
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<td>1. Pathological pocket ≥ 6mm</td>
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<td></td>
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<tr>
<td>2. Pathological pocket 4-5mm</td>
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</tr>
<tr>
<td>3. supragingival calculus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. subgingival calculus</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5. bleeding on gentle probing</td>
<td></td>
<td></td>
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<tr>
<td>6. absence of periodontal disease</td>
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<td></td>
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Index teeth

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