PATIENTS' KNOWLEDGE AND SATISFACTION WITH AESTHETIC DENTAL PROCEDURES AND RESTORATIONS DONE AT THE CONSERVATION CLINIC OF UON DENTAL HOSPITAL

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BDS LEVEL III
V28/2724/2009

A community dentistry research proposal submitted in partial fulfillment of the requirements for the award of a Bachelors of Dental Surgery degree of the University of Nairobi

2012
DECLARATION

I, Murungi Daniel Mwiti, a level III BDS student at the University of Nairobi, hereby declare that this is my original work and has not been submitted anywhere else by any other person for research purpose or award of any degree.

Signature ___________________________ Date ___________________________

SUPERVISORS APPROVAL

We certify that this research project has been submitted with our approval as supervisors.

Internal supervisor

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UNIVERSITY OF NAIROBI

Signed ___________________________ Date ___________________________
ACKNOWLEDGEMENT

First and foremost I thank the almighty God for His continued protection and providence. Secondly, I wish to express my gratitude to my supervisors, DR MUTAVE R and DR OSIRO O who spent many hours reading, correcting and providing valuable recommendations to my proposal. I also thank my classmates for their moral support throughout the process of compiling my proposal.
DEDICATION

I dedicate this research proposal to my parents, Isaiah and Joan, for taking me to school.
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LIST OF ABBREVIATIONS

BDS – Bachelor of Dental Surgery.
IADR- International Association for Dental Research
Dr – Doctor.
GIC – Glass ionomer cements.
GP – General practitioner
KNH – Kenyatta National Hospital.
PhD-Doctor of philosophy
ISO-International Organization for Standardization
UON- University Of Nairobi
UONDH-University of Nairobi Dental Hospital
SPSS –Statistical Package for Social Sciences.
KNH/UON-ERC-Kenyatta National Hospital/University of Nairobi-Ethics and Research committee
ABSTRACT

Background

Dental aesthetics has become just as important as function \(^1\). Numerous factors are related with dental aesthetics, these include: shape and shade of teeth and the shape of the dental arches \(^1\). Achieving an aesthetic restoration which is appealing and satisfying to the patients is fundamental in dental practice \(^2\). Placement of a restoration which simulates normal tooth morphology and shade is considered aesthetic \(^4\). Color stability \(^5\), affordability \(^6\) and durability \(^7\) of these restorations are some of the factors known to influence patients’ satisfaction. Patients’ age \(^8\) and gender \(^11\) as well as their level of education \(^12\) also play a critical role in determining their level of satisfaction. On the other hand, knowledge of the various aesthetic dental options available, influences their demand and utilization of these services \(^13\).

Objective

The aim of this study is to investigate the awareness among patients attending the conservation clinic at the UONDH of the various aesthetic dental procedures available and the level of their satisfaction after receiving aesthetic treatment.

Study design

This is a descriptive cross-sectional study using hospital-based study groups.

Study period

August to October 2012

Material and methods

This study will be conducted at the conservation clinic in the University of Nairobi dental hospital. A total of 195 patients will be included in the study. Convenient sampling will be used to select the study population. With the aid of a semi-structured questionnaire, participants will be interviewed about gender, age, level of education, self-reported tooth appearance, knowledge of aesthetic dental procedures and degree of satisfaction with their aesthetic dental treatment.
Data analysis

SPSS version 17.0 will be used to analyze the data which will then be presented by use of graphs, tables and percentages.

The perceived benefit

To equip qualified dental officers and clinical year students with better understanding of the level of their patients satisfaction and knowledge of aesthetic dental treatment, therefore, enhancing the effectiveness of their treatment plan as well as the treatment outcome. The study will also form a reference for future related studies.
CHAPTER 1

1.0 INTRODUCTION

Maintenance and improvement of aesthetics among patients has been one of the most significant indications of dental treatment over a long period of time [1]. Conservative aesthetic dentistry emphasizes the artistic component. Aesthetic dentistry is the art of dentistry in its purest form [1]. Consequently, it is the desire of every dentist to make aesthetic improvements to their patients and leave them with beautiful smiles [2].

Aesthetics as far as conservative dentistry is concerned entails having a restoration that is indistinguishable from natural tissues of teeth [2]. Certain basic artistic elements must be considered to ensure an optimally aesthetic result. These include: Shape or form, symmetry, alignment, surface texture, color and translucency [3]. In addition to being aesthetic, restorations must also be functional. Aesthetics and function go hand in hand. The better the aesthetics, the better the function is likely to be and vice versa [1]. Therefore, occlusion and physiologic contours that promote good gingival health should be assessed before any conservative aesthetic procedure [3].

Aesthetic dental treatment is objectively designed to correct chipped, cracked, discolored and unevenly spaced teeth [3]. From direct restorations like composite fillings to indirect restorations like porcelain veneers, patients can choose from a variety of dental solutions to restore the health and vitality of their smile. Examples of common aesthetic dentistry option are: direct tooth-colored restorations, gum contouring to reshape the gum line, indirect restorations like porcelain veneers to conceal cracks, chips and create a whiter appearance, and finally teeth whitening by bleaching [1].

Various factors have been shown to influence patients' satisfaction with aesthetic dental restorations. For instance, age of the patient plays a significant role in patients' satisfaction with teeth color [4]. Studies have shown that young patients, aged between 19 and 39 had higher dissatisfaction rates compared with patients aged 40 and over. Younger people have greater preferences for whiter teeth. This may be related with the fact that younger people could be more influenced by media. It could be argued that younger people are trying to look more beautiful
and healthy, in the knowledge that there is a strong link between appearance and social status expressed by better jobs and social acceptability [4]. Patients’ level of education has also been shown to affect their satisfaction. With the increase in education level, dissatisfaction with tooth color has significantly reduced [5]. Education is one way by which self-esteem may be enhanced. Thus, it is possible that the attainment of higher education may indirectly improve self-satisfaction with tooth color. Studies have shown that dental esthetic satisfaction was correlated with education level, but not with age and gender [5]. In addition, a great decrease in the percentage of patients hiding teeth while smiling was observed with the increase in education level, showing that education is an important factor for feeling confident while smiling [6].

Satisfaction that patients get after aesthetic restorations is greatly influenced by the dentist’s technique and material properties [7]. For instance, moisture is undesirable during placement of aesthetic dental materials like GIC and composites and therefore should be isolation. Shade selection for composite restorations should be done under appropriate conditions so as to achieve the correct tooth color. These techniques depend on the skills of the dentist and therefore the more skillful a dentist is, the better the outcome [7].

Patient’s knowledge of the different types of aesthetic restorations is important as well. This will influence their preference for a certain restoration over another [8]. Knowledge of the properties of these materials will give patients understanding about the care required to maintain their restorations in good condition. In addition, they are able to budget appropriately for the various aesthetic restorative procedures [10]. Awareness of the various aesthetic dental treatment options among patients will enlighten them to utilize these services [12]. Studies have shown that more than half of the population is aware of the available dental services. Only 46.5% have utilized dental services during their lifetime [13]. Individuals with moderate to high levels of awareness have utilized dental services more than those with low levels of awareness [14].

The aim of this study is to determine the level of knowledge among patients regarding aesthetic dental treatment options in particular those which are offered at UON dental hospital. In addition, this study will evaluate patients’ satisfaction with aesthetic dental restorations and the procedures involved during their placement.
1.1 LITERATURE REVIEW

Patients' knowledge and their satisfaction with aesthetic restorations has been studied extensively and documented among non African populations. Developing counties like Kenya have experienced a growing demand for aesthetic restorations among patients. Since the early 1970s, resin-based composite systems and their dimethacrylate resins have become the material of choice for direct aesthetic anterior restorations [1].

A descriptive cross-sectional study by Diana et al in a south eastern European community showed that among the patients who wanted improvement on one of the oral functions, majority requested changes in aesthetics. Dental shade was one of the aspects recognized as problematic by participants [3]. A similar finding was seen in a study by Gili et al on patients' satisfaction with dental aesthetics. This research conducted among Americans showed that tooth color was a major factor with regard to tooth aesthetic. Most subjects were interested in improving their appearance and whitening their teeth [6].

Patients’ knowledge and preference of a certain aesthetic restoration greatly influences the dentists’ decisions. This was showed in a study by Ivar et al among young patients in Norway and Denmark. It concluded that patients had considerable sensitivity to differences in visibility and much less to differences in duration [7]. This means that they were more satisfied having a aesthetic restoration than a durable one.

Aesthetic restorations have an impact on patients self esteem and confidence. A descriptive longitudinal panel study by Davis et al on psychological effects of aesthetic restorations on patients showed that there was a significant positive shift in patients’ self esteem [8]. These patients are able to socialize freely and are generally more confident in their new look. However, this study failed to capture the negative effects of failed aesthetic restorations in terms of fracture resistance and post operative sensitivity.

The procedures used by different practitioners to restore teeth using aesthetic restorative materials may significantly influence patient satisfaction. A prospective ten-year clinical trial for porcelain veneers showed that these materials represent a reliable and effective procedure for aesthetic restoration of anterior teeth [9]. However, it also showed that occlusion, occlusion
design, presence of composite fillings and adhesives used to bond the veneers to the tooth substrates were co-variables that affected the outcome these restoration in long term thus affecting patients’ satisfaction. But a study conducted by Meijering et al to assess patients’ satisfaction with different types of veneer restorations concluded that differences in clinical procedures had no effect on patients’ satisfaction \(^{10}\).

A study conducted by Burke et al in 2001 to establish the complaints presented by patients seeking to have replacement of their aesthetic restorations, concluded that secondary caries was the most prevalent reason for replacement of restorations. Of the patients who received glass ionomer restorations, 35% were rated as having high caries susceptibility, compared with 21% of those who had composite restorations and 30% of those who had compomer restorations \(^{111}\). In line with this research, there is a need to evaluate the prevalence of wear and color stability of aesthetic restorations and consequently the contribution of these factors to patients’ satisfaction.

Three research studies conducted to evaluate patients’ satisfaction with resin composite restorations had comparatively similar findings. The first study by Briggs et al was on clinical performance and patient satisfaction with direct composite restorations on worn mandibular anterior dentition \(^{141}\). It concluded that patient acceptance and adaptation to the technique was good and the results were accompanied with a high level of patient satisfaction that was maintained for the medium term.

The second study by Kenneth et al conducted in France on tooth wear treated with direct composite restorations, showed that a mean follow-up of 30 months had a combined success rate of 89.4% and patient satisfaction was generally good \(^{15}\). The third study by Creugers et al involved two long-term clinical studies on resin bonded bridges. It concluded that the degree of patient satisfaction was high and did not appear to be influenced by the occurrence of failure \(^{16}\). However, these three studies didn’t describe patients’ satisfaction with the cumbersome technique of doing these restorations. Finally, a study by Arthur et al on patients’ demand for aesthetic restorations, showed that 15% of patients seeking dental treatment demand for aesthetic dental restorations \(^{17}\). This prevalence has been used in computing the sample size for this study.
CHAPTER 2

2.0 STATEMENT OF THE PROBLEM
Patients are highly concerned about the appearance of their teeth and smiles, and this drives them to seek dental treatment to correct any perceived malformation or pathology. Various aesthetic dental treatment options are available, and it is because of this knowledge that patients are able to demand for it. However, sometimes the treatment they ask for may not be indicated in their case, or there may be a better alternative. Aesthetics is a very subjective concept and is perceived very differently from one person to the next, hence the need to assess the patient’s level of satisfaction following aesthetic dental treatment.

2.1 JUSTIFICATION
There is limited data on the level of patients’ knowledge of aesthetic dental treatment procedures and their degree of satisfaction after receiving such treatment at the conservation clinic of UON dental hospital. Such data is necessary for any intervention to improve the patients’ awareness and satisfaction with these restorations. This is in line with the university’s mission and ISO certification. The information obtained may also be used as reference in future related studies.

2.2 OBJECTIVES

2.2.1 General objective
- To evaluate the patients’ knowledge and satisfaction with aesthetic dental procedures and restorations done at conservation clinic of UON DH.

2.2.2 Specific objectives
- To determine the level of patients’ knowledge of direct aesthetic dental restorations.
- To determine the level of patients’ knowledge towards indirect dental restorations including tooth whitening.
- To evaluate patients’ satisfaction with the cost of aesthetic dental restorations.
- To evaluate patients’ satisfaction with the color stability of aesthetic dental restorations.
- To assess patients’ satisfaction with durability of aesthetic dental restorations.
• To assess patients’ satisfaction with the techniques used during placement of aesthetic dental restorations.

2.3 RESEARCH QUESTION
Patients attending conservation clinic of UON dental hospital have neither knowledge nor satisfaction with aesthetic dental procedures offered there.

2.4 VARIABLES

2.4.1 Social-demographic variables
• Age
• Sex
• Residence (urban/ rural)
• Level of education

2.4.2 Independent variables
• Direct aesthetic dental restorations
• Indirect aesthetic dental restorations
• Tooth whitening
• Knowledge of aesthetic dental treatment options.

2.4.3 Dependent variables
• Satisfaction with aesthetic dental restorations.
• Satisfaction with procedures involved in aesthetic dental treatment.
CHAPTER 3

3.0 MATERIALS AND METHODS

3.1.1 Study area
The study will be conducted at the conservation clinic of UON Dental Hospital. The clinic serves the population of Nairobi and people from other parts of Kenya. Dental school serves as a referral dental hospital in the country, and as a teaching institution. Most restorations in the clinic are done by clinical year students under supervision of trained tutors, most of whom are specialists.

3.1.2 Study population
The study population will comprise patients attending the conservative clinic of UON Dental Hospital.

3.1.3 Study design
This will be a descriptive cross-sectional study using hospital-based study groups.

3.1.4 Sample size
Sample size was computed using the following formula:

\[ N = \frac{Z^2 \cdot P \cdot (1-P)}{C^2} \]

Where:
N= Sample size
Z= Z value according to the confidence level chosen
C=1 - Confidence level
P= Prevalence.

Using a confidence level of 95%, Z value of 1.96 and a prevalence of 15% [Arthur et al, Br. Dent J 188,497(2000)]

\[ N = 1.96^2 \cdot 0.15 \cdot (1-0.15) \]
(1-0.95)^2

N = 195

3.1.5 Sampling method
Convenient sampling method will be used to select the participants. The patients fitting in the inclusion criteria will sign a consent form before filling in the questionnaire. The questionnaires will be used to obtain data required to meet the objectives of the study and to standardize the exercise.

3.1.6 Sampling unit
Patients seen at UON dental hospital in the conservation clinic, who meet the inclusion criteria and consent to participate in the study, will be recruited.

3.1.7 Study period
The study will be conducted between August and October 2012.

3.2 INCLUSION CRITERIA
- Patients attending UONDH, conservation clinic and require aesthetic dental treatment at the clinic.
- Only patients who have given an informed consent.
- Patients attending the clinic and have previously received aesthetic dental restorations within the last 20 years.
- Patients who have just received aesthetic dental treatment in the clinic at the time of interview.
- Patients above 18 years of age.

3.3 EXCLUSION CRITERIA
- Patients who have received unaesthetic restorations like amalgam.
- Patients who won’t give informed consent.
• Patients below 18 years of age.

• Very ill patients and those with mental illness.

3.4 DATA COLLECTION AND TECHNIQUES TOOLS

3.4.1 Data collection methods
Data will be collected through interviewer-administered questionnaires. The participants will be patients visiting the conservation clinic at UONDH for esthetic restorations as well as patients who have already had esthetic restorations previously. The questionnaires will be filled by patients who fit the inclusion criteria. The variables such as sex, age, residence and education level will be recorded. The questionnaires will be filled and collected before the patients leave.

3.4.2 Minimizing of errors and bias
Pretesting of the questionnaires will be done to assess logistical problems such as language problems, validity and reliability.

The investigator will undergo a brief training on how to go about data collection to ensure uniform data collection.

3.4.3 Data analysis and presentation
The data will be analyzed by use of a computer, using SPSS version 17.0. The presentation of the data will be in the form of tables, graphs and percentages.

3.5 ETHICAL CONSIDERATION

• Informed consent will be sought from patients who will participate in the study. They will be presented with a consent form which they will sign before participating in the study voluntarily.

• The study will be beneficial in that it will equip qualified dental officers and clinical year students with better understanding of the level of their patients satisfaction and knowledge of aesthetic restorations, therefore, enhancing the effectiveness of their treatment plan as well as the treatment outcome. The study will also form a reference for future related studies.
• The study will not pose any health risk to the participants since data will be obtained through interviewer-administered questionnaires.

• Participants will be free to participate or refuse to take part in the study without any victimization.

• Consent form will also be signed by a witness.

• A translated Kiswahili version of the consent form will also be availed.

• Information given by the participants will be treated with utmost confidentiality.

• Authority to conduct the research is being sought from the KNH/UON Ethics and Research Committee to whom this proposal is presented.

• Permission to conduct the research will be sought from the Department of Conservative and Prosthetic dentistry where the research is based.

3.6 LOGISTICS OF THE STUDY

• Financial constraints on the researcher as the study is self-sponsored.

• Data collection by the researcher may be challenging because it coincides/overlaps with lectures and clinical session time.

• Language barrier as some patients may not understand English or Swahili.

3.7 PERCEIVED BENEFITS

• To equip qualified dental officers and clinical year students with better understanding of the level of their patients satisfaction and knowledge of aesthetic restorations, therefore, enhancing the effectiveness of their treatment plan as well as the treatment outcome.

• The report will be submitted in partial fulfillment of the requirements for the award of a Bachelors of Dental Surgery degree of the University of Nairobi.

• The information obtained may be used as reference in future related studies.
### 3.8 BUDGET AND TIMEFRAME

#### 3.8.1 Budget

A total of Ksh.6000 will be used to conduct the research. It will be self-funded by the principal investigator. The amount will be distributed as follows:

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REFERENCES

2. Ahmad I. Anterior Dental Aesthetics; Historical perspective. British Dental Journal, June 2005; 198(12); 737-742.


APPENDIX 1 (Questionnaire)
PATIENTS' KNOWLEDGE AND SATISFACTION WITH AESTHETIC PROCEDURES DONE AT THE CONSERVATION CLINIC OF UON DENTAL HOSPITAL

QUESTIONNAIRE

SERIAL NUMBER (For official use only)..............................

Tick where appropriate and fill in the blank spaces provided.

AGE (YRS) ........................................

SEX: MALE................ FEMALE..................

RESIDENCE: RURAL .............. URBAN ..................

HIGHEST LEVEL OF EDUCATION ATTAINED:

- PRIMARY LEVEL ..........
- SECONDARY LEVEL ........
- TERTIARY LEVEL ...........
- OTHERS (specify) .........

1. Do you know of any tooth-colored/aesthetic fillings and other aesthetic procedures done at UON dental hospital’s conservative clinic? Yes........... No............

2. If yes, select the one(s) you are familiar with

   White fillings.......... 
   Veneers..............
   Crowns..............
   Tooth whitening....... 

3. Have you received any aesthetic/tooth-colored restoration or other aesthetic treatment from UON dental hospital? Yes........ No........,...

4. If yes, - How many? .............

   - When was the treatment done..........................
5. Are you satisfied with the filling(s) or other aesthetic treatment you received?
Yes......... No...........

6. How do you consider your filled teeth: (tick in space provided)
   Discolored............
   Durable................
   Sensitive................
   Weak....................
   Strong...................
   Attractive................
   Unattractive..............
   Enlarged....................
   Thin........................
   Others........................

7. Are you satisfied with the cost of treatment? Yes........... No............

8. How do you consider the whole procedure of teeth restoration? (tick in space provided)
   Tiresome................
   Painful...................
   Quick....................
   Comfortable............... 
   Long......................
   Others........................

9. In your opinion, what aspects of aesthetic restorations and placement procedure needs to be improved? ..........................................................................................................................
    ..........................................................................................................................
    ..........................................................................................................................
    ..........................................................................................................................
    ..........................................................................................................................
    ..........................................................................................................................
    ..........................................................................................................................

Thank you for your participation

END
APPENDIX 2-consent form, English version

PATIENTS' KNOWLEDGE AND SATISFACTION WITH AESTHETIC PROCEDURES DONE AT THE CONSERVATION CLINIC OF UON DENTAL HOSPITAL

I, MURUNGI D MWITI, a level III Bachelor of Dental Surgery student at the University Of Nairobi, currently conducting a study on patients’ knowledge and satisfaction with aesthetic restorations done at conservative clinic of UON dental hospital, wishes to request you to participate in the study that will form part of my degree course. You will participate by filling the attached questionnaire after signing this consent form which will also be signed by a witness. Participation is voluntary and utmost confidentiality is assured for any information given. This study will not pose any health risks to you.

You are free to participate or refuse to take part in the study without any victimization. The study will be beneficial in that it will equip qualified dental officers and clinical year students with better understanding of the level of their patients satisfaction and knowledge of aesthetic restorations, therefore, enhancing the effectiveness of their treatment plan as well as the treatment outcome. The study will also form a reference for future related studies. Authority to conduct the research was sought from the KNH/UON Ethics and Research Committee to whom the proposal was presented. Permission to conduct the research was sought from the Department of Conservative and Prosthetic dentistry where the research is based. A Kiswahili version of this form is also available.

Your participation in this study will be highly appreciated.

I would therefore appreciate your consent by signing below.

I, ........................................................., confirm that I have understood the relevant parts of the study and do hereby give consent to participate.
Sign........................................ Date........................................

The witness

Name............................................................................

Sign........................................ Date............................

18
APPENDIX 3- consent form, Kiswahili version.

Fomu ya Idhini

UFAHAMU WA WAGOJWA NA KUTOSHEKA KWAO NA MATIBABU Y ANAYOPENDEZA KWA MENO YAO WANAPOTIBIWA KATIKA HOSPITALI YA MENO YA CHUO KIKUU CHA NAIROBI

Mimi, Murungi Daniel Mwiti, mwafunzi wa mwaka wa tatu anayamongeza shahada ya Dental Surgery katika chuo kikuu cha Nairobi, Ningependa kukuhiwa uafahamu wa wagojwa na kutosheka kwao na matibabu yanayopendeza kwa meno yao wanapotibiwa katika hospitali ya meno ya chuo kikuu cha Nairobi. Utashiriki kwa kujibu maswali yanayohusu matibabu na halia meno yakao baada ya kutia sahihi fomu hii ambayo pia itatiwa sahihi na shahidi. Kushiriki ni kwa hiari na yote utakayoandika yatawekwa kwa siri. Utafiti huu hautahatarisha afya yako.


Utashiriki huu utahatarisha afya yako. Utashiriki huu utahatarisha afya yako.

Utashiriki huu utahatarisha afya yako. Utashiriki huu utahatarisha afya yako.

Utashiriki huu utahatarisha afya yako.