KNOWLEDGE, ATTITUDE AND COMPLIANCE TO ROOT CANAL TREATMENT AMONG PATIENTS SEEN AT CONSERVATIVE CLINIC AT UNIVERSITY OF NAIROBI DENTAL HOSPITAL.

A research project proposal for a community dentistry project submitted in partial fulfillment of the bachelor of dental surgery degree at the University of Nairobi.

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ABBREVIATIONS:

BDS - Bachelor of Dental surgery.
UON – University of Nairobi.
DMFT – Decayed, Missing, Filled, Teeth.
WHO - World Health Organization.
Kshs- Kenya Shillings.
SPSS – Statistical package for social sciences.
SUMMARY:

Root canal treatment is done when there is irreversible destruction of the pulp which is caused by dental caries, fractures of the tooth involving the pulp, radicular cysts, granulomas and tooth avulsion. Its main objective is to maintain a functional tooth in the oral cavity. Root canal treatment is one of the most feared procedures. Major set back of root canal treatment is most patients lack the knowledge. It should be done on motivated and compliant patients because it is an intense procedure that involves a lot of dedication from both patients and dentist involved.

This will be a descriptive cross-sectional study aimed at determining the knowledge, attitude and compliance of patients to root canal treatment. The study will be carried out among 91 patients visiting conservative dentistry clinic at the University Of Nairobi Dental Hospital. The sample size will be selected using systemic random sampling method. A self-administered questionnaire will be used to collect data on their knowledge, attitude and compliance to root canal treatment.

From this study information will indicate the extent of patient's knowledge on root canal treatment, giving them more knowledge about it, encourage them to have a positive attitude and be compliant to the treatment. It will also be used to come up with strategies on education to improve the level of compliance to root canal treatment.
INTRODUCTION:

Dental caries is a microbial disease of the calcified tissue of the teeth characterized by demineralization of the inorganic and the destruction of the organic substance of the tooth. It destroys the enamel and dentine leading to a pathway for bacteria to reach the underlying tissue. This causes infection and inflammation of the pulp and periapical tissues leading to acute pulpitis. The prevalence of dental caries as reported by WHO varies between 60-80% and the estimated prevalence in East Africa is 60%. Studies done in Kenya show a prevalence of dental caries is 55% and DMFT of 1.8, with a higher prevalence in females than in males. The general trend of dental caries is highest among the middle and low socio-economic groups. The trend is lowest among the high socio-economic groups. Dental caries progresses to inflammation of the pulp leading to intermittent pain at first and overtime progresses to a constant dull throbbing pain or a severe ache that might be felt on all the teeth of the affected side. Most of the patients visit a Dentist due to severe pain that caused sleepless nights.

A root canal treatment is done when the pulp is irreversibly damaged or there is evidence of periapical disease or the crown of the tooth requires extensive modification. The way of managing this is by root canal treatment and this can only happen if the patients have adequate knowledge about the treatment, a positive attitude towards it and be compliant to the treatment i.e. understand the importance of all the visits. Some of the possible causes of failure are lack of judgment in accepting a tooth for treatment either because of operative difficulties or poor health of the patient, inadequate debridement during canal preparation, traumatic injury of the periapical tissue during canal instrumentation, use of irritating Irrigants or anti-septic passed beyond the foremen, failure to disinfect the root canal, infection in accessory canals with failure to sterilize them, imperfect root canal obturation failing to seal off the apical foramen, action of an overfilled canal as an irritant, excessive amount of cement in periapical tissue, inaccessible canal in multi-rooted tooth, broken instruments or other cause of blockage of canal, inadequate sterilization of instruments.
The research problem is to find out not only the knowledge and attitude but also the compliance of patients visiting university of Nairobi, Dental hospital conservative clinic towards root canal treatment.

The aim of the study is to determine the knowledge, attitude and compliance of patients to root canal treatment seen at the Conservative clinic, University Of Nairobi.
LITERATURE REVIEW:

Root canal treatment is done when there is irreversible destruction of the pulp which is caused by dental caries, fractures of the tooth involving the pulp, radicular cysts, granulomas and tooth avulsion. Dental caries is a chronic progressive lesion, which is cavitations, occurs repair by dental health professionals is essential. Studies done in New Zealand and Australia indicated that prevalence of dental caries was around 45%; however, there were many unreported cases. Apart from dental caries, tooth fractures involving the pulp, periapical cysts and granulomas also require root canal treatment. An estimated 90% of schoolchildren worldwide and most adults have experienced caries, with the disease being most prevalent in Asian and Latin American countries and least prevalent in African countries. In the United States, dental caries is the most common chronic childhood disease, being at least five times more common than asthma. It is the primary pathological cause of tooth loss in children. Between 29% and 59% of adults over the age of fifty experience caries. The number of cases has decreased in some developed countries, and this decline is such as fluoride treatment. Nonetheless, countries that have experienced an overall decrease in cases of tooth decay continue to have a disparity in the distribution of the disease. Among children in the United States and Europe, 60-80% of cases of dental caries occur in 20% of the population. A similarly skewed distribution of the disease is found throughout the world with some children having none or very few cavities and others having a high number. Some countries, such as Australia, Nepal and Sweden a low incidence of cases of dental caries among children, whereas cases are more numerous in Costa Rica and Slovakia.

Root canal therapy removes blood vessels and nerves from a tooth, which may be infected and/or damaged. It may also be required to remove a "live" nerve from a tooth (sometimes known as "elective" root canal therapy). Several things including decay, injury and also gum disease can cause a root canal infection. Subsequent to the removal of the pulpal remnants, cleaning and obturation of the resultant space is executed in order to prevent bacterial proliferation within the canal system. Root canal therapy may be the only way to repair your tooth if it has been badly damaged by infection.
A study carried out in the European population at the United States Dental School. The results showed out of the 5272 teeth examined, 5.5% had root fillings, periapical lesions in 4.1%. The lesser quality root fillings were more strongly associated with periapical disease.

Peterson et al (1997) carried out a study on the outcome of root canal treatment. The results obtained were as follows; out of 2375 teeth examined and had a root canal treatment done, a failure rate of 38% was reported. Another study conducted by Nordenram et al (1970) showed a failure rate of 20.5%. In 1973, 129 patients received a root canal treatment, a failure rate of 37% was observed in 49 patients.

A study carried out by Alexander et al (2005) on the largest percentage (30.7%) of recalled patients (178/579) was examined after one year. Teeth that had undergone pretreatment had 19% of failure; 14.3% were in the process of healing. With respect to the periapical status prior to the endodontic treatment, the success rate ranged from 55.6% to 87.8%. Permanent restorations were present in 78% of the cases, and only 7.3% of the teeth still had no restoration after the one-year follow up. Three Western European studies (2003) present very poor results of endodontic treatment (below 50% success), which is claimed to be associated with poor technical quality of the root fillings. According to studies carried out by the European Society of includes in addition to root canal preparations and fillings, the experience of preoperative radiographs, determination of working length and radiological control of the quality of filling.

A retrospective study conducted by Wrong M et al out of 898 teeth receiving root canal therapy was performed to document the sequelae of delayed completion of root canal treatment. Teeth were categorized into a prompt treatment group and a delayed treatment group. Comparisons of prompt and delayed treatment groups were made with regard to preoperative pain, inter-appointment emergencies, postobturation pain, and final treatment. Findings from this study show that a palliative endodontic procedure is an extremely effective treatment. However, 56% of teeth with incomplete root canal therapy eventually were extracted compared with 2 to 3% for the root canal filling treatment groups. By emphasizing the potential loss of the tooth rather than the potential of inter-
appointment emergencies, the clinician may be more effective in achieving compliance among patients receiving delayed treatment.

Root canal treatment involves 2-3 visits. The steps include: Local anesthesia is used so that procedure will be pain free; placing a rubber dam over it will then isolate the tooth. This thin sheet of rubber provides a clean and aseptic working environment. An opening is then made through the top of the tooth into the pulp chamber. The pulp is removed from the pulp chamber and the root canals are cleaned, enlarged and shaped to a form that can be filled and sealed later. A temporary filling is placed in the opening in the tooth to seal it between visits. There can be some discomfort in the area of the tooth for a day or two. The second visit involves the removal of the temporary filling and the root canals are then filled and sealed with a permanent filling material. Many patients after their first visit will never return to their dentist for the second visit because the pain has subsided. There are few studies conducted on the compliance of patients to root canal treatment. Therefore the present study will explore the knowledge, attitude and compliance among patients to root canal treatment.
**PROBLEM STATEMENT:**

Root canal treatment is carried out when there is an irreversible damage to the pulp. Its main objective is to maintain a functional tooth in the oral cavity.

Many patients opt for an extraction although this is achievable. This is due to lack of knowledge, which leads to a negative attitude and poor compliance to the treatment available.

**JUSTIFICATION:**

Few studies have been conducted on the knowledge, attitude and compliance of patients to root canal treatment.

The results of such a baseline data will be used for future planning and evaluation of root canal treatment in conservative clinic, University of Nairobi. It would also be used by policy makers on the oral health education strategy on the importance of root canal treatment.

This study will determine the level of knowledge of patients and will be useful to know which information should be dispatched to the patients about the treatment available. It will also assess the attitude and compliance of patients to root canal treatment.

**OBJECTIVES:**

**GENERAL OBJECTIVE:**

To determine the knowledge, attitude and compliance to root canal treatment among patients seen at Conservative clinic.

**SPECIFIC OBJECTIVES:**

1) To determine the level of patients knowledge regarding root canal treatment.

2) To determine patients attitude towards root canal treatment.

3) To determine patients compliance to root canal treatment.
HYPOTHESIS:
Patients have inadequate knowledge, a negative attitude that leads to poor compliance towards root canal treatment.

VARIABLES:

Socio-demographic variables
a) Age
b) Sex
c) Level of education
d) Occupation

INDEPENDENT VARIABLES:
1) Knowledge of patients to root canal treatment.
2) Attitude of patients to root canal treatment.

DEPENDENT VARIABLES:
1) Compliance of patient to root canal treatment
MATERIALS AND METHOD:

STUDY AREA;
The study will be conducted in the University of Nairobi Dental Hospital in the outskirts of the city of Nairobi. The capital city of Kenya. Nairobi is a cosmopolitan city with people from various ethnic backgrounds. The hospital is located along Argwings Kodhek road. It serves as the University Dental School and National referral hospital. It receives patients not only from Nairobi but also from the entire country.

STUDY POPULATION;
The study group comprises of all the patients visiting the conservative clinic at the University of Nairobi Dental Hospital during the period of data collection.

STUDY DESIGN;
This will be a descriptive cross-sectional study.

STUDY SAMPLE;
The study sample is calculated using the following formula:

\[ n = ZP(1-P) \]
\[ \frac{C^2}{C} \]

Where N=Sample size
P= Prevalence (50%)
Z=1.96
C=1-Confidence level (95%)

\[ n = 1.96 \times 1.96 \times 0.50 \times (1-0.50) \]
\[ 0.5 \times 0.5 \]
\[ n = 3.84 \times 0.5 \times 0.5 \]
\[ 0.0025 \]
n = 0.9609
0.0025
n = 384

nf is the sample size for a population less than 10,000.
N is the entire population.

\[ Nf = n \frac{1 + n/N}{1 + n/120} \]

\[ n = 384 \]
\[ 1 + 384/120 \]
\[ n = 384 \]
\[ 1 + 3.2 \]
\[ n = 384 \]
\[ 4.2 \]
\[ n = 91 \]

**SAMPLING METHOD:**
A systemic random sampling method will be used to select a sample. All patients reporting for root canal treatment in the clinic during the study period will be included in the study. About 120 patients are seen in the clinic within three months.

**INCLUSION CRITERIA:**
Patients above the age of 18 years who present in conservative clinic and who will give consent to participate in the study.

**EXCLUSION CRITERIA:**
All patients who do not give consent to participate in the study.
All patients in other clinic.

**DATA COLLECTION, INSTRUMENT AND TECHNIQUE:**
Data collection will be done using interviewed self-administered questionnaire to determine the knowledge, attitude and compliance towards root canal treatment.
DATA ANALYSIS;
The result will be analyzed via SPSS- a computer application package. The data will be presented in form of tables and bar charts. The measures to be computed include percentages, mean, standard deviation, range, proportions and chi square test.

ETHICAL CONSIDERATION;
Authority to conduct the study will be sought from Kenyatta National Hospital/University of Nairobi Ethics and Standards Committee. The purpose of study will be explained to the patients and they will be at liberty at any stage to terminate to be part of the study without victimization. Informed consent will be sort from the respondents.
All the information gathered during the course of the study will be treated with utmost confidentiality. The findings of this project will be utilized in the betterment of the study group it targets.

PROBLEMS ANTICIPATED:
(1) Financial and time constraints during the study.
(2) Respondent may subject the data to sampling and non-sampling errors such as misunderstanding of the questions.
(3) Due to limited time in the academic year, the time allocated may be inadequate to gather adequate data.

STUDY BENEFITS:
(1) It will be used to develop strategies on education that will be used to improve the level of compliance to root canal treatment.
(2) Report will be submitted for partial fulfillment of the requirement of Bachelor of Dental Surgery Degree course in the University Of Nairobi.
**BUDGET:**

**PROPOSAL DEVELOPMENT PHASE:**

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**TOTAL** 4870/=
REFERENCE:


3.) Laura and David Michelle at el of oxford clinical handbook of clinical dentistry 4th edition root canal therapy, 318-333.


CONSENT FORM:

Purpose of the study
I am a third year dental student. I would wish to kindly request for an approval to conduct a research on “The knowledge, attitude and compliance to root canal treatment among patients seen at conservative clinic at the university of Nairobi Dental Hospital”. This is part of a requirement for a bachelor degree in Dental Surgery. The information from this study will be used to formulate policies to improve on the success rate of root canal treatment among patients.

Voluntary participation
I understand I have entered the study voluntary and I understand that I can terminate my participation without any consequences.

Anticipated risk
No risk is anticipated for participating in the study

Confidentiality
The information collected will be treated with utmost confidentiality.

I the undersigned __________________ having had been informant about the study, had time to ask questions, received answers concerning issues I did not understand, do willingly give consent to participate in the study.

__________________________ Date

__________________________ Date

(patient signature/print right thumb) (Person who informed discussed with the patient)
QUESTIONNAIRE:

Please answer the following question to the best of ability according to the instructions given.

NAME: ........................................
AGE: ........................................
GENDER: .................................
Level of education: ........................
High school: ..............................
College: .................................
University and higher: ....................
Others (please indicate): ...................

(1) What is root canal treatment?
   (A) Is the removal of the pulp.
   (B) Is the removal of the tooth.
   (C) I don't know.

(2) When is root canal treatment done?
   (A) When you have pain.
   (B) Tooth is dead.
   (C) I don't know

(3) How many visits does it take to complete root canal treatment?
   (A) 1
   (B) 2-4
   (C) 3-5
   (D) I don't know

(4) Would you prefer to have a root canal treatment or have your tooth removed?
   (A) Have a root canal treatment done.
   (B) Have my tooth removed.
   (C) I don't know.
(5) Have you had a root canal treatment before?
   (A) Yes
   (B) No

(6) If yes, how did you like the treatment?

(7) Was the treatment uncomfortable?
   (A) Yes, why?
   (B) No

(8) If yes, would you go back for root canal treatment?
   (A) Yes
   (B) No

(9) Did you attend all appointments as scheduled?
   (A) Yes
   (B) No

(10) What number of visit is this?
    (A) 1
    (B) 2
    (C) 3
    (D) 4
    (E) None

(11) What are the reasons for the failure to comply with the appointment?

   That completes our questionnaire
   Thank you very much for your cooperation!
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