

**ORAL HEALTH STATUS OF PSYCHIATRIC IN-PATIENTS
ATTENDING ST, AMANUAL SPECIALIZED PSYCHIATRIC HOSPITAL,
ADDIS ABEBA, ETHIOPIA.**

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**FINAL RESEARCH PAPER TO BE SUBMITTED TO COLLEGE OF
PUBLIC HEALTH AND MEDICAL SCIENCE , DEPARTMENT OF
DENTISTRY , STUDENTS RESEARCH PROGRAM , JIMMA
UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENT
FOR THE REQUIREMENT FOR THE DEGREE OF DOCTOR OF
DENTAL MEDICINE (DMD).**

**JUNE, 2013 G.C
JIMMA, ETHIOPIA**

Jimma University

**Collage of public health and medical sciences department of
dentistry**

**Oral health status Psychiatric in- patients attending ST.Amanual
specialized Psychiatric hospital, Addis Ababa, Ethiopia**

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June, 2013

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ABSTRACT

BACKGROUND: - Psychiatric disorders are known to be a risk factor for the development of different oral health problems especially for dental caries and periodontal disease and also many patients suffering from psychiatric illness are on medication for long periods, These medications frequently cause xerostomia leading to an increased risk of caries, gingivitis, periodontitis and stomatitis In spite of this fact some study has been conducted to reveal its magnitude in Ethiopia.

Objective:-The main objective of this study is to determine the oral health status of psychiatric in- patients attending ST.Amanual specialized Psychiatric hospital.

Methods: - A hospital based cross sectional study was conducted with appropriate sample size of 153.the data will be collected by doing oral examination and interviewing of the patient all of the data will be recorded by using structured questioner, the data will be analyzed with Spss window, version17 and also different variables will be associated by using statistical association like Chi-chart, and p-value.

Result and discussion: - from the total of 150 patients take part in the study 87(55.3%) are male and 63(44.7%) are female and most of the patients are diagnosed with bipolar and schizophrenia which h accounts 33.3% and 44.7% respectively .the rest are 8.7% and 2% had depression and epilepsy respectively. among the patients 103 (68.7%) clean their tooth and 47(31.3%) don't clean their tooth .89(59.3%) of patient experiencing gum bleeding. CPI -S ranges from around 3 in 46 of the patients. the caries status which is expressed in DMFT is in mean average of 0.51. the patients admitted to the warred in between 1-2 years are 47% ,less than 1 year are 34% ,2-4 year are 16% and the rest are staying for more than 5 year. The average plaque index of the patient is 0.77, the calculus index of the patient is1.15 and the oral hygiene index of the patients is 1.9.only

Conclusion and recommendation:- The oral health status of the psychiatric patients was poor. Thus, health education about oral hygiene should Be given for psychiatric patients so they can avoid the frequent intake of sweets, smoking and learn correct tooth brushing technique.

ACKNOWLEDGEMENT

First of all I will like to say thank to my **GOD** for everything he gave me throughout my life, secondly I am greatly indebted to my supervisor Dr. Fikert Akililu for her through supervision and support and also for her valuable comments throughout my research conditions .

The last but not the list my gradated is goes to Sister.Tseay girma she is a psychiatric nurse at St.Amanuale psychiatric hospital for giving me some information on this topic and the hospital, as well she help me on data collection and clinical examination .

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Abbreviations

(DMFT)-Decayed, Missing and Filled Teeth

(DMFS)- Decayed, Missing and Filled Surfaces

(DMD)-Dental medical doctor

(OHI-S)-Oral Hygiene Index

(WHO) -world health organization

(SES) - Socio economic status

(PI)-principle investigator

(JUSH)- jimma university specialized hospital

Operational definition

1. **Bleeding on probing** –indicates the inflammation and bleeding with touching by probe.
2. **Plaque index**-total plaque score divided by number of teeth surface examined.

Classification

Code I –no plaque on tooth surface it 0

Code II-there are a flecks of stain at gingival margin it scores 1

Code III-there is a definitive line of plaque gingival margin it scores 2

Code IV-if it includes the gingival 3rd of the surface it scores 3

Code V-it includes 2/3 of surface of the tooth it scores 4

Code VI-if it includes >2/3 of the surface of the tooth it scores 5 and it is calculated by

Total score =sum of the all facial and lingual surface of a tooth which is examined.

Index = total score

No of surface examined

- 3, **Oral Hygiene** –a state of mouth and associated structures where future disease is inhibited the occlusion is sufficient to mastication and teeth are almost free of disease. **OHI-S** is scored in the number of tooth surface scored in six teeth the score includes plaque index and calculus score. The six surfaces examine in OHI-S selected from four in posterior and two in anterior (**Greene and Vermilion, 1960**)

16		11		26
46		31		36

The buccal surface is selected in upper molar and lingual surface of lower molar is selected and inspected, in anterior tooth labial surface of upper right and lower left are inspected, in the absence of either of the anterior tooth the other tooth's (21 & 41) respectively will be inspected.

Plaque index = (The total of the upper and lower buccal-scores) + (The total of the upper and lower lingual-scores) / (The number of segments scored).

Calculus Index = (The total of the upper and lower buccal-scores) + (The total of the upper and lower lingual-scores) / (The number of segments scored).

The average individual or group debris and calculus scores are combined to obtain Oral Hygiene Index, as follows.

N.B:- **OHI-S = Plaque index + calculus index**

4, DMFT index – Index used to measure dental caries which is referring to decayed, missed and filled teeth

5, DMFT scoring – individual DMF = D + M + F

6, Total DMF = D total + M total + F total

1, Average DMF = $\frac{\text{Total DMF of individual}}{\text{Total number of individual}}$

% of teeth needing restoration = $\frac{\text{Total D component}}{\text{Total DMF}}$

% of teeth lost by extraction = $\frac{\text{Total M components}}{\text{Total DMF}}$

% of teeth filled = $\frac{\text{Total F component}}{\text{Total DMF}}$

CHAPTER ONE

Introduction

1.1. Background information

Oral health is fundamental to general health and essential for wellbeing. The psychosocial impact of oral health problem significantly diminishes quality of life (1), (2). It affects eating, talking and other social and psychological areas of life (3). Dental caries and periodontal disease are the two most common diseases that affect oral health (4), (5). Up to 90% of the world population could be affected with periodontal diseases demonstrating the high rates of infection. If left untreated, it can lead to progressive loss of the alveolar bone around the teeth, resulting in loosening and loss of teeth.

Psychosocial factors and certain medical conditions such as diabetes and infection with human immunodeficiency virus were identified as risk factors for poor oral hygiene (6)–(8). On the other hand, mental health is one of the fundamental components of health [9], [10]. Over 450 million people are estimated to be suffering from mental disorders in the world today (11) and it affects people at all socioeconomic levels (12).

People with severe mental illness have a greater risk to oral diseases than those without. This is because of various reasons such as the type and severity of mental illness, lack of personal perception of oral health problems, poor oral hygiene, specific dental phobia, and difficulty in accessing health care facilities, the side effects of psychiatric drugs, poor diet, self-neglect and dental professional's knowledge and attitudes toward people with mental illness. At the same time dental treatment is difficult for these patients because of their lack of motivation and apathy, limited cooperation, low adaptability to new prostheses, mobility difficulties, and fear of treatment, poor communication as well as financial considerations (13)–(17).

In the past two decades, it has been reported that the consequence of oral health whether from mental illness or other causes, has an effect on general health. It results in a range of medical conditions including cardiovascular diseases, type 2 diabetes, adverse pregnancy outcome, osteoporosis, aspiration pneumonia and

rheumatoid arthritis. Current evidence suggests that improved oral health should be encouraged as part of the healthy lifestyle message to reduce the burden of chronic disease (18).

In Ethiopia, oral health has a low priority in the context of mental illness. To the best of our knowledge, there is only little information is -available regarding oral health among patients with mental disorders in Ethiopia. Hence, the purpose of this study was to assess oral health status of psychiatric in-patients at St.Amanual Psychiatric hospital.

1.2. Statement of the problem

Increasing length of hospitalization as well as length of illness episodes is positively correlated with periodontal problems and caries (19). The term mental illness is used to describe clinically recognizable pattern of psychological symptoms or behavior causing chronic or acute ill health one of the primary target of health of the nation initiative is to improve the health and social functioning of mentally ill people oral health contribute to general health ,self-esteem and quality of life (20).

Psychiatric disorders are among the most common health problems nowadays. They are characterized in mood or behavioral and are associated with significant distress and impaired functioning over extended period of time (21, 22).

In comparison with general population, psychiatric patients have poor oral and dental health behaviors which is due to the fact that psychiatric patients with more hospital admission are more negatively affect oral health of psychiatric patients with more hospital admission are more likely to report -dental symptoms (23).lack of preventive care over the length of hospitalization because of unavailability of personnel is contributing factor (24).

Despite of that the psychiatric setting services as important opportunity for oral health promotion and intervention, oral care has remained neglected component of in-patient care (25).

The most common side effect oral and systemic of the psychotherapeutic medications is the reduction in salivary secretions, leading to a wide array of oral diseases (26),(27),(28)(29)(30),(31). Sialorrhea, dysphagia, sialadenitis, dysguesia,

stomatitis, gingivitis, glossitis, tongue edema, discolored tongue, and bruxism are other complications reported [32],[33]. this may present as difficulty with speech ,chewing ,swallowing ,poor denture tolerance ,problem with retention and stability of denture or denture trauma(34,35).

Studies on psychiatric patients have shown a relatively high frequency of non-compliance with oral health practices, which represent a major problem in dental care for hospitalized psychiatric patients [36]. Reports have indicated that the oral health of psychiatric patients is poor and have large treatment needs[37],[38],[39],[40]

Among the unique population groups deserving special attention are patients with psychiatric and mental disorders. To date, only few studies have been conducted to determine the oral health status of institutionalized psychiatric in-patients in Ethiopia.

1.3. Significance of the study

Oral diseases especially periodontal diseases and caries are the most common oral diseases attacking human beings throughout the world specially in patients with psychiatric illness this study concerned to assess the general oral health status among psychiatric in-patients at St.Amanuale specialized mental hospital.

Hence this study will try to recommend the psychiatric care-givers to evaluate their psychiatric patient's oral health care and also will try to recommend the hospital administrative body's to give emphasis on oral health care of their clients

In Ethiopia, oral health has a low priority in the context of mental illness. To the best of our knowledge, only little information is available regarding oral health status among psychiatric patients in Ethiopia, so the result obtained from this study will contribute to existing little information. And also the data obtained will be used by public health worker and health planners as base line data. The overall result will also be used by other dental researcher to work on broader population and forward appropriate recommendations to responsible organ.

1.4 limitation of the study

- 1, some of psychiatric patients are not corporative for interviewer
- 2, some of psychiatric patients did not provide required adequate information
- 3, some of psychiatric patient are not attending at the ward and at the bed they assigned during the time of interviewing.
- 4, some surfaces like proximal and root surfaces difficult to diagnose visually.

Chapter TWO

LITERATURE REVIEW

Oral symptoms such as excessive palatal erosion, self-inflicted injury and facial pain are the first manifestation of mental health problem. One third of patient attending a temporomandibular joint dysfunction had evidence of mental disorder. Periodontal diseases and dental caries are the other most common oral problems in psychiatric patient in addition to psychiatric drug effects. (41, 42)

According to across sectional study done on south west Italy on hospitalized psychiatric patients with the aim of quantifying the oral health status and dental treatment need, the oral hygiene of dentate patients was poor and they need different treatment options to prevent their oral disease (47) (43)

The oral health of 219 residents with mental retardation living in a long-term-care institution near Milan was assessed. The dental and periodontal status, daily habits, oral hygiene, and oral mucosal status were evaluated.. The percentage of residents who were edentulous was 21.5% (47 subjects), of whom 28 subjects (59.6%) were without dentures. Evaluation showed an overall DMFT of 23.1, and the average number of missing teeth was 20.5. All subjects had periodontal disease: Forty-five subjects had calculus and/or shallow pockets (4–5 mm); 61 had deep pockets (≥ 6 mm). The most common mucosal lesion was oral stomatitis (49.3%). (44)

On study done in India 220 psychiatric patients admitted in two general hospitals of Davangere during the period of one year were included in the study. The oral health status was evaluated with respect to caries, oral hygiene, and periodontal status:. The multiple logistic regression analysis showed that the mean DMFT (0.92) increased with age, duration of mental illness, and irregularity of oral hygiene habits ($P < 0.001$). Mean OHI-S score was 3.3 and multiple logistic regression analysis showed that the mean OHI-S score increased with age ($P < 0.001$). The findings of this study demonstrate low caries prevalence, poor oral hygiene, and extensive unmet needs for dental treatment.(45)

In the study by Kumar et al surprisingly low prevalence of decayed, missed and filled teeth were reported .indeed, not single participant 13-15 years of age and above 35 years of age and above 55 years of age was recorded as having a filled tooth, while the average number of decayed and missing tooth was reported at 0.57

and 0.8 respectively. The CPI scores from the studies and reported pockets of 6mm or more and bleeding in 64 % of patients examined (46).

One Indian journal of dental research on oral health status of psychiatric in-patients out of the total study population of 220 psychiatric, 29 were too ill or were aggressive and 11 refused to participate in the study, hence only 180 participated with the response rate of 81.8% the highest proportion of psychiatric patients are found among the age group of 15 -24 .58.7 % of the patients had less than 1 year of mental illness, 45 % diagnosed with mood disorder. the DMFT score were 0.92 ± 1.8 and 2.54 ± 5 respectively .there were 118 caries free patients ,with caries prevalence of 32.2 % .the mean OHI-S score was found to be 3.3 (46,47)

The research done in Honkong University with the aim of examining the oral health status of a group Chinese psychiatric in patients in long term rehabilitation facility ,a dental survey using WHO standardized dental evaluation form is conducted by qualified dentists ,according to this research 91 patients (64.8%) mean age :44.9 years and mean length of illness :20.3 years were included in the study .majority of them (80.2% of patients diagnosed with schizophrenia malocclusion was found in 79.1% of patients .the mean number of missing tooth was 9.5 bleeding on probing ,calculus shallow and deep pocket were found in 7.1% ,72. 8% and 28.2 % of patients respectively. dental caries were found in 75.3 % of dentate patient .the mean number of caries per patient was 5.5. 54% of patients need dental extraction and 78.8 % required conservative dental treatment(48)

Oral disease particularly periodontal diseases is common in Nigeria as exemplified by prevalence rate of 15-58 % for periodontal diseases with deep pocket among individuals aged above 15 years .the DMFT is below 4 in most communities with varied from higher values in urban areas to lower values in rural areas signifying low caries experience. Despite the low caries prevalence the restoration index is extremely low with most carious teeth, the poor oral health awareness plus scanty areas are contributory to increasing trends of oral disease (49).

A research done on JUSH psychiatric clinic from a total of 240 total participants, from those the majority of patients were receiving anti-psychotic drugs. From this the mean DMFT score among the psychiatric patients was 1.94 ± 2.12 (mean \pm SD) with 1.28 ± 1.69 , 0.51 ± 1.19 and 0.14 ± 0.48 (mean \pm SD) for decayed, missed and

filled teeth respectively. Only about 24% of the psychiatric patients had a healthy CPI score. Incorrect tooth brushing technique was significantly associated with a DMFT score greater than 2 (AOR=3.58; 95% CI: 1.65, 7.79). The habit of sweet intake was also associated with dental caries (AOR=2.91; 95% CI: 1.43, 5.95). Similarly, patients with a smoking habit also demonstrated statistically significant association with dental caries (AOR=18.98; 95% CI: 5.06, 71.24. (50).

CHAPTER THREE

OBJECTIVE

3.1 General objective

- To assess the general oral health status of psychiatric in- patients in St, Amanual specialized psychiatric hospital during the study period.

3.2 Specific Objectives.

- To assess the DMFT score in psychiatric in-patients.
- To determine possible complication of their medication to oral disease.
- To assess the oral hygiene index of psychiatric in pateints.
- To assess the mucosal friction index (record dry mouth)
- To co-relate the socio demographic data with different oral diseases conditions

CHAPTER FOUR

METHODES AND MATERIALS

4.1. STUDY AREA

The study was conducted in st.Amanuel specialized mental hospital which is found in capital city of Ethiopia, Addis Abeba, mesalemia

Earlier the hospital was staffed with by professionals from abroad like the former soviet union and Yugoslavia ,however after 25 years of service they were gradually replaced by Ethiopian mental health professionals ,currently the hospital has 10 psychiatrists ,five general doctors ,more than100 psychiatric nurses ,17 health officers ,78 lab technologists and technicians ,10 pharmacists and including the administrative staff there are 530 employees in the hospital .

4.2. STUDY PERIOD

Study was conducted from May 5-17 (2013G.C)

4.3 STUDY DESIGN

A hospital based cross sectional study design was implemented to achieve this study.

4.4. Population

4.4.1. Source population

The source population was all psychiatric patients at st.Amanuel specialized psychiatric hospital

4.4.2 Study population

The study populations are psychiatric in-patients at st.Amanuel specialized psychiatric hospital that fits inclusion criteria at study period.

4.5 sample size

The sample size is determined by the following formula

$$N_0 = \frac{Z^2 p(1-P)}{d^2}$$

$$d^2$$

Where = N_0 = sample size

Z = confidence interval of 95% (CI= 1.96)

P = Estimated prevalence of oral disease

d = margin of sampling error to be tolerated = 0.05

The sample size was determined by a formula using prevalence rate of 50% and 95% CI and 5% marginal error.

$$N_0 = \frac{(1.96)^2 (0.5) (1.0.5)}{(0.05)^2}$$

$$N_0 = 384$$

Using the following correction formula,

$N_f = \frac{N_0}{1 + \frac{N_0}{N}}$ - where: N_0 = sample size calculated (384)

N = Total of patients expected to attend

N_f = Actual sample size

$$N = 255$$

$$N_f = \frac{384}{1 + \frac{384}{255}} = \frac{384}{1 + 1.5} = \frac{384}{2.5} = 153$$

4.6. Sampling Technique

Simple Random sampling technique was used

4.7 .measurement variables

4.7.1 Dependent variables

DMFT –scores of caries status

OHI-scores of oral hygiene index

Mucosal friction index- record dry mouth

PI-plaque index

4.7.2 Independent

Age

Sex

Religion

Ethnicity

Marital status

Educational status

Types of Psychiatric illness

Types of Psychiatric medication

Duration of hospitalization

Duration of illness

4.8 Data collection materials and instruments

- Pen
- Pencil
- Paper
- Eraser
- Spatula
- Gloves
- Questionnaires

4.9 Data collection and analysis

4.9.1 Data collection technique

The data was collected from April 26 – may 10 2013 in st.Amanual specialized psychiatric hospital by investigator and by a dental intern using structured questionnaire and oral examination was done for psychiatric patient who are admitted to the warred.

4.9.2 Data quality control

The methods of questioning and filling the questionnaire was explained to the data collectors by principal investigator, the examination was done by dental intern, and the data was checked for consistency and accuracy.

4.9.3 Data analysis and interpretation

Data collected was cleared, entered in to computer, analyzed and grouped using **spss window, version16**. The result was presented by using tables and figures, p-value chi square (χ^2) will be determined if there is any significant association between the variables.

4.10. Inclusion and exclusion criteria

Inclusion: - All Psychiatric in-patients attend st.Amanual specialized psychiatric hospital in the study period was included.

Exclusion: - Psychiatric in- patients who are aggressive, with other chronic diseases like DM, HIV, and HTN was excluded.

4.11. Ethical consideration

Each participant on the study was included in the study after verbal informed consent. And ethical clearance was obtained from JIMMA University SRP to St. Amanual specialized psychiatric hospital

CHAPTER FIVE

RESULT

Study subject characteristics: -

From the total of 150 patients take part in the study of those 87(58%) are males and 63(42%) are female. 42%(63) are in age between 35-54 years of age and the least are in age >65 which are (4%) 6.the largest ethnic group mostly seen the in study are Oromo (50) 33.3% and the least are southern nation which are 16 (10.7%).most of the patients are orthodox Christian follower which accounts 56.7%(85) and 4.7% (6) are following traditional believe. 70.7 %(106) are living in urban areas and the rest are living in rural 44(29.3%). 71.33% (107) of the study groups are literate of those 28.6% are attaining primary school and the least are 7(4.6%) have ability to read and write only.71 (47.3%) are in status of marriage and 9(6%) are divorced and most of the study groups attain privet works which are mostly vocational works 60(40.03%) and there are small students 27 (18.67%) .

Mental health status

Among 150 subjects attending in the study about 67(44.6%) are diagnosed with psychosis such as schizophrenia ,33.3% are diagnosed with bipolar disorders ,8.6 % are diagnosed with depression ,around 2% have an epilepsy and the rest have a disorder like drug abuse ,anxiety and psychiatric disorders (e.g. dementia, somatization disorder and sexual dysfunction).

Majority of the patients are taking antipsychotics 44.67% (such as haloperidol, thioridazine, fluphenazine ,decanoate, chlorpromazine), 35.5% are taking anxiolytics like diazepam, 8.6% are taking anti-depressants(like amitriptyline, imipramine,fluoxetine) and the other 11.3% are taking drugs like mood stabilizers Like sodium valproate and drugs for sexual dysfunction such as sildenafil citrate.

63.3% of the patients are admitted to the warred less than one year, 30.66% are admitted one to two years, and 5.33% are admitted in between two to four years and rest 2% are admitted > 5 years in the hospital.

Oral health status

Majority the patients which are around 68.7% of study groups have habit of tooth brushing of those who brush their tooth 59.2% brush their tooth regularly and 50.3% use mefaki for brushing but most patients are using water for rinsing at least once a day in addition to brushing .majority of the patients brush horizontally and missed way 43.7% each and the rest practice horizontal brushing.36% of the patients have habit of smoking cigarettes and also 20.66% of the patients have chate chewing habit .majority of the study population 61.33% have habit of sweet intake at least once a day .

The average DMFT score of the study group is 0.51 and the average plaque and calculus indexes are 0.755 and 1.15 respectively. When we look the oral hygiene indexes of the patients it is around OHI(S) 1.9. Only 5.2% of patients have filing on their tooth, patient living in urban area have high DMFT, regarding periodontal status of patient it is expressed in terms of CPI- scores which range 1-5 according to severity. According to this CPI- score principle majority of participants are with CPI- 3 score (46%). patient experienced gum bleeding while 98(65.3%).

Majority of the patients have a normal oral mucosal status on the palate (89%) and 6% have a local inflammation and 5% have other changes such as local oral whitish lesion. On the lingual mucosa 97% frection have a normal mucosa and 3% other changes other than inflammation. Most of the patients have a sensation of dry mouth but most of the patients have null mucosal index 73% and 14% have a little dry mouth and 13 have an obvious friction. 6% of the patients have denture and 6.67% patients have oral infection.

Table -1 Socio-demographic characteristic psychiatric in- patients at St.Amanuel specialized psychiatric hospital, Addis abeba, Ethiopia February 2013

So nr	Variables	Characteristics	No
1	Sex	Male	87(58%)
		Female	63(42%)
2	Age	< 14	23(15.3%)
		15-34	51(34%)
		35-54	63(42%)
		55-65	7(4.6%)
		>65	6(4.1%)
3	Ethnicity	Oromo	50(33.3%)
		Amhara	49(32.6%)
		Gurage	25(16.7%)
		Tigræ	16(10.7%)
		Southern nations	10(6.7%)
4	Religion	Orthodox	85(56.7%)
		Muslim	39(26%)
		Protestant	12(8%)
		Catholic	8(5.3%)
		Other	6(4.7%)
5	Place of origin	Ruler	44(29.3%)
		Urbane	106(70.7%)
6	Educational status	Literate	
		Read and write	7(4.6%)
		Primary school	43(28.6%)
		Secondary school	38(25.3%)
		Higher education	19(12.6%)
	Illiterate	43(28.9%)	
7	Marital status	Single	71(47.3%)
		Married	58(38.6%)
		Divorced	9(6%)
		Widowed	12(8.4%)
8	Occupation	Merchant	35(23.3%)
		Gov t employer	28(18.67%)
		Student	27(18%)
		Other	60(40.03%)

Table 2- psychiatric in- patient's response to behavior related to oral health in association with dental caries and DMFT at the St, Amanual specialized psychiatric hospital A.A Ethiopia 2013

Oral health related behaviors		Number	DMFT _{AV}	P – value	Chi – square (x ²)
1.Habit of brushing their tooth					
Yes	Male	59	0.43	0.9	0.007 Df=1
	Female	44			
No	Male	28	0.6		
	Female	19			
2.Frequency of brushing their tooth					
Regularly	Male	35	0.31	0.98	X ² =0.001 D _f =1
	Female	26			
Irregularly	Male	24	0.6		
	Female	18			
3.Material used for brushing of their tooth					
Mefakia	Male	38	0.58	0.05	Df= 1 X ² = 3.7
	Female	20			
Tooth brush	Male	21	0.44		
	Female	24			
4.way of cleaning tooth					
Vertically	Male	8	0.41	0.005	Df = 2 X ² = 10.6
	Female	5			
Horizontally	Male	33	0.53		
	Female	12			
Mixed	Male	18	0.59		
	Female	27			
5.Habit of smoking					
Yes	Male	35	0.77	0.009	X ² =6.7 Df =1
	Female	19			
No	Male	41	0.43		
	Female	55			

6.Habit of Chat chewing					
Yes	Male	27	0.67	0.002	X ² =13.6 Df =1
	Female	4			
No	Male	60	0.53		
	Female	59			
7.Habit of sweet intake					
Yes	Male	57	0.81	0.26	X ² = 1.5 Df =1
	Female	35			
No	Male	30	0.4		
	Female	28			

Table 3- psychiatric in- patient's response to behavior related to oral health in association with dental caries and DMFT at the St, Amanual specialized psychiatric hospital A.A Ethiopia 2013

Age	Number	DMFT index	p-value
< 15	23(15.3%)	0.32	Df=4 X ² =8.2 p-value=0.08
15-34	51(34%)	0.29	
35-54	63(42%)	0.32	
55-64	7(4.6%)	0.8	
>65	6(4.1%)	0.74	

Table -4, Diagnosis of psychiatric patient according to DSM-IV in association with oral disease at ST, Amanual specialized psychiatric hospital A.A Ethiopia 2013

Diagnosis of psychiatric patient	Number	Oral diseases				X ²
		Gum bleeding	DMFT-score	Oral infections	p-value	
1.Depression	13	7	0.62	2	0.001	X ² = 26.6 Df = 8
2.Psychosis such as Schizophrenia	67	44	0.35	4		
3.Epilepsy	3	3	0.26	-		
4.Bipolar disorder	50	27	0.53	3		
6.Others	17	9	0.74	1		

Table-5 Type of drug the patients are taking in association with oral hygiene status and DMFT-S at St, Amanual specialized psychiatric hospital A.A Ethiopia 2013

Drug used	Number	Oral hygiene status		p-value	CHI-SQUARE (X ²)
		Plaque index	Oral hygiene index		
Anti-depressant	99(65.8%)	0.8	2.47	0.06	X ² =12 Df =6
Anti-psychotic	26(17.5)%	0.95	1.81		
Anti-convalescent	6(3.8%)	0.64	2.18		
Others	19 (12.9%)	0.63	1.16		

Table -6 OHI-S score among psychiatric in-patients according to age St, Amanual specialized psychiatric hospital A.A Ethiopia 2013

Age group	Number	Patients having denture	Plaque index	Calculus index	Oral hygiene index	p-value
< 15	23(15.3%)	0	0.71	1.13	1.84	X² =16.8 Df =16 p-va= 0.4
16- 34	51(34%)	2	0.84	1.83	2.67	
35-54	63(42%)	7	0.77	1.18	1.95	
55-64	7(4.6%)	0	0.74	1.02	1.76	
>65	6(4.1%)	0	0.59	0.71	1.3	

Table-7 Duration of hospitalization of psychiatric in-patients in St, Amanual specialized psychiatric hospital A.A Ethiopia 2013 in association with DMFT, periodontal disease and oral infections.

Duration	Number	DMFT score	Oral infections	p-value	Chi-square
<1	95	0.31	3	0.04	Df=6 X ² =13.05
1-2	46	0.44	3		
2-4	8	0.58	4		
>5	3	0.71	0		

CHAPTER SIX

DISCUSSION

Hospital based cross-sectional study is take part in 150 patients at St. Amanule specialized psychiatric hospital to determine oral health status of psychiatric inpatients.

According to socio-demographic characteristics, patients >35 years have high chance of having high DMFT score than <35 years individuals with P-value 0.08 showing statistically significance association. This agrees with the research studied by kumar et al (26). This can be due to poor oral health habit which is manifested as individual age increases having longtime for teeth demineralization. DMFT-score is higher in urban than in rural with this also agrees with a research done in Nigeria (30). In urban individuals are engaged in consumption of more of sweetened foods and carbohydrates because of their easily accessibility than of rural which lead to high DMFT- score with poor oral hygiene practice.

Educational status is another factor that has strong statistical association with DMFT- score, as educational status increases, DMFT- score decreases.

Consistent with the study done by kumar etal (which states bleeding in 64% of psychiatric patients examined (26), 59.3% of psychiatric patients have gingival bleeding in this study; with P-value of 0.035 which shows statistically significant association between psychiatric illness and gum bleeding. This relatively high gingival bleeding in psychiatric patients can be due to drug side effect and low self-esteem.

Concerning smoking habit, 36% of psychiatric patients are smokers, with P-value 0.096 showing that there is statistical association between smoking habit and psychiatric illness. This high smoking habit of psychiatric patients may be due to mimicking behavior of psychiatric illness in which they smoke to mimic a previously smoker individual.

Inconsistent with a research done in Hong Kong University which found calculus in 71.8% (22), 95.3% of psychiatric patients in this study are with calculus. This deference between the two figures can be due to low awareness of oral health in our country.

The DMFT (the average 0.51) and OHI-S(average 1.9) of the study population is increase as the age of the patient is increasing with the P-value of 0.08 which is by convectional criteria statically significant and fit with the study done in to general hospital of danvanger with with DMFT score of 0.92 OHI-S of 3.3.the finding shows poor oral hygiene and extensive need of treatment.(45)

The research done in JUSH south west Ethiopia shows patients with a smoking habit also demonstrated statistically significant association with dental caries (AOR=18.98; 95% CI: 5.06, 71.24. (50).in this study it shows that the patient having habit of smoking have DMFT score of > 0.77 which have a P-value of 0.009 which is convectional statistically significant and fit with the research done in JUSH.

The length of admission its and the duration of illness has an association with the DMFT AND OHI-S of the patient .as the age of admission increase both variables also increase with P-value of 0.008 which is statically significant and the result is mostly concede with the research done in Danvanger which have p-value of $p<0.001$.(45)

CHAPTER SEVEN

CONCLUSION AND RECOMMENDATION

7.1. Conclusion

- Psychiatric patients more are vulnerable for caries.
- Periodontal diseases are higher in psychiatric as evaluated by CPI- scores.
- Psychiatric patients have poor oral health habit.
- Individuals with >30 years, higher educational status and those coming from rural have lower DMFT- scores.
- The duration of illness of and length of admission have impact on the caries and oral hygiene

RECOMMENDATION

1. Oral health education should be given for psychiatric patients and or attendants by the hospital/ health institutes
2. Psychiatric doctors should emphasize oral condition of patients for early referral.
3. Hospital administration should facilitate conditions in which each psychiatric patients especially those with long term illness could be visited regularly by dental professionals.
4. Some voluntary NGO'S should help oral health enhancement of psychiatric patients by supplying instruments such as tooth brush and tooth paste freely.

CHAPTER SEVEN

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ANNEX II

JIMMA UNIVERSITY

Department of Dentistry

Questionnaire format prepared to study

Read the instruction and fill the following format correctly by making “x” mark.

Annex II -Questionnaire

Carde N^o : _____

1, socio Démo-graphic profile

Sr.no	Question to be asked	Proposed response	Coded response
01	Sex	1. Male 2. Female	
02	Age		
03	Present address	1. Urban 2. Rural	
04	Occupation	1. Farmer 2. Merchant 3. Employed 4. Unemployed 5. Others	
05	Educational Status	1. Literate 2. Illiterate	
06	If literate, what educational level	1. Read and write only 2. 1-4 grade 3. 5-8 grade 4. 9-12 grade 5. Above 12	
07	Ethnicity	1. Oromo 2. Amhara 3. Tigrie 4. Gurage 5. Dawuro 6. Yem 7. Others	

08	Religion	1. Orthodox 2. Muslim 3. Catholic 4. Protestant 5. Others	
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2, Oral health question

01	Do you clean your teeth?	1. Yes 2. No	
02	If yes, what do you use to clean your teeth?	1.Mefakia 2.Charcoal 3.Tooth brush 4.Onlyrinse with water 5.Others	
3	How frequently do you clean your teeth?	1.Once a day 2.After each meal 3.More than once a day 4.Irregularly 5.Every other day 6.One times per week	
4	How do you do cleans your teeth?	1.Top to bottom (vertical) 2.Side ways(Horizontal) 3.Mixed 4.circular	
5	When do you brush your teeth?	1.Morning only 2.After meal 3.Before going to bed 4.Irregular 5.Morning and before going to bed	
6	Have you ever smoked?	1. Yes 2.No	
7	If yes to question number 7 how often?	1,Regularly 2,Occasionally 3,Rarely	
8	Do you chew chat?	1. Yes 2.No	

9	If yes for Q9, how often?	1. Regularly 2. Occasionally 3. Rarely	
10	Do you take sweet intakes?	1, Yes 2, no	
11	If yes to Q11, how often?	1, Once a day 2, After each meal 3, More than once a day 3, Irregularly 4, Every other day 5, One times per week	
12	Diagnosis of psychiatric illness	1. Depression 2. Psychosis such as schizophrenia 3. Epilepsy 4. Bipolar disorder 5. Anxiety 6. Other specify _____	
13	Medication that you take	1. Anti-depressant 2. Anti conversant 3. Anti-epileptics 4. others-----	

Oral health examination

1, Oral plaque index

181716, 1514	1312 11 21 22 23	24 25 26 27 28
48 47 46 45 44	43 42 41 31 32 33	34 35 36 37 38

2, Calculus index

1817161514	131211212223	2425262728
4847464544	434241313233	3435363738

3, DMFT score

Decayed tooth

1817161514	131211212223	2425262728
4847464544	434241313233	3435363738

Missed tooth

1817161514	131211212223	2425262728
4847464544	434241313233	3435363738

Filled tooth

1817161514	131211212223	2425262728
4847464544	434241313233	3435363738

4, oral hygiene index

181716, 1514	1312 11 21 22 23	24 25 26 27 28
48 47 46 45 44	43 42 41 31 32 33	34 35 36 37 38

OHI-S= plaque index +calculus index

5. Oral mucosal status

Palatal mucosa A, Normal, -----

B, Local inflammation-----

C, General inflammation, -----

D, Other changes----

Lingual mucosa

A, Normal, -----

B, A trophic-----

C, other changes-----

6. Mucosal friction index (record dry mouth)

A, No -----

B, some-----

C, obvious friction -----

“Good luck”

