

Risk Factors for Psychiatric Morbidity and Demographic Characteristics Among Patients with Facial Injury

Cleophas Juma Wafula^{1*}, Rogers Shitiavai Songole², Daniel Waiganjo Kinyanjui³, Amar Ashraf²

¹Senior Registrar, Moi University, School of Medicine, Department of Mental health, Kenya

²Senior Lecturer, Moi University, School of Medicine, Department of Mental health, Kenya

³Lecturer, Moi University, School of Medicine, Department of Mental health, Kenya

***Corresponding author:** Wafula CJ, Senior Registrar, Moi University, School of Medicine, Department of Mental health, Kenya, Tel: +254721208676; E-mail: wafshallie@yahoo.com

Received: January 06, 2020; **Accepted:** January 27, 2020; **Published:** February 05, 2020

Abstract

Background: A disfigured face resulting from a facial injury is a source of both objective and subjective stigma which predisposes one to psychiatric morbidity. The associations between socio-demographic/clinical characteristics and psychiatric morbidity among patients with facial injury at Moi Teaching and Referral Hospital (MTRH) is unknown.

Objective: To assess the associations between socio-demographic/clinical characteristics and psychiatric morbidity among patients with facial injury at Moi Teaching and Referral Hospital (MTRH).

Methods: The study was a descriptive and analytical cross-sectional in which the mini international neuropsychiatric interview questionnaire was administered to diagnose the presence of psychiatric morbidity and a researcher-designed questionnaire was used to collect socio-demographic and clinical characteristics. The study was done at the surgical unit of MTRH where 90 consenting patients were interviewed from January to December 2017. Categorical data were summarized with frequency tables and percentages. Association between categorical variables was analyzed by chi-square and Fisher's exact test. Logistic regression was used to measure the association between psychiatric morbidity and socio-demographic/clinical variables.

Results: Ninety participants were evaluated, 77% were male. The mean age of the patients evaluated was 32 ± 11 years. Seventy-one percent resided in rural areas. The commonest cause of facial injuries were road traffic accidents 51(57%), followed by interpersonal injuries 27(30%) and burns 11(12%). The prevalence of psychiatric morbidity among patients with facial injury at MTRH was 61.1%, of this 47.3% were diagnosed with more than one disorder. Twenty-five participants (28%) had alcohol use disorder: others included anxiety disorders 23(25.6%), depression 18(20%), other substance use disorder 13(14%), psychotic disorders 9(10%), attempted suicide 4(4%), and antisocial personality disorder 3(3%). The prevalence of alcohol use disorder among males was 35% compared to 5% among females ($p=0.007$).

Compared to patients with facial burns patients with maxillary/ orbital fractures had 87.5% reduced odds of being diagnosed with psychiatric morbidity (AOR 0.125, P = 0.034 95%CI, 0.039, 0.859). Age, marital status, level of education, as well as cause and duration of injury were not statistically significantly associated with psychiatric morbidity.

Conclusion: The study recommends that routine screening for psychiatric morbidity among patients with facial injury should be initiated and comprehensive care offered. Prevention strategies for alcohol and other substance use disorders should be initiated targeting particularly males.

Keywords: *Psychiatric morbidity; Facial injury; Psychological care; Association*

1. Introduction

Psychiatric morbidity is the presence of clinically significant disturbance in an individual's cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental function and leads to dysfunction in social occupation and other areas of important activities [1]. These disorders are diagnosed using criteria described in the fifth edition of Diagnostic Statistical Manual (DSM 5) or International Classification of Diseases tenth revision (ICD 10).

They include mood disorders such as bipolar mood disorders and depressive disorders, psychotic disorders such as schizophrenia, anxiety disorders such as generalized anxiety disorder, panic disorder, agoraphobia, social anxiety disorders and posttraumatic anxiety disorders. Others include eating disorders, personality disorders and substance use disorders among others.

The causes of psychiatric morbidity follow a bio-psychosocial model. Biological factor include exposure to toxins, inflammations, drugs, alcohol, poor diet, genetic aberrations, brain structural abnormalities and neurochemical dysfunctional. Psychosocial causes include stressors, parenting styles, negative childhood experiences, separations, migration, loss of jobs and poverty, among others.

Risk factors for psychiatric morbidity include family history of mental illness, exposure to stressful situations, having chronic medical and mental illness, alcohol and other substance abuse, traumatic brain injury, traumatic experiences, childhood neglect, among others [2].

Facial injuries are physical trauma to the face that may involve bony or soft tissues. They are in form of fractures, lacerations, bruises, or burns. Maxillofacial injuries can be classified either as upper fractures, involving the frontal bone and sinuses, the middle fractures, which involves the nasal, ethmoid, zygomatic and maxillary bones and the lower fractures which involves the mandible bones. These injuries are caused by accidents such as road traffic accident and falls from height, interpersonal violence such as fights, burns, and self-inflicted injuries. Patients with facial injury are at higher risk of developing psychiatric morbidity than the general population [3]. This is because the face is the most important aspect of personality and

identity. It also serves as a tool of communication Moreover disfigured face following trauma is a source of objective and subjective social stigma, discrimination and neglect [4].

Psychiatric morbidity is the presence of clinically significant disturbance in an individual's cognition, emotion regulation or behavior and is diagnosed using the fifth edition of Diagnostic Statistical Manual criteria by American Psychiatric Associations. A disfigured face resulting from a facial injury is a source of both objective and subjective stigma which predisposes one to psychiatric morbidity. Patients with facial injury in surgical units get inadequate psychological care. This complicates surgical care outcome and increases the cost of care.

According to the WHO (2017), Psychiatric disorders among patients with facial injury are under recognized and undertreated. Some of the reasons fronted by WHO (2017) that make it still undertreated include Lack of urgency, misinformation, and competing demands are blinding policy-makers and healthcare providers from taking stock of a situation.

The risk factors for psychiatric morbidity and demographics affecting patients with facial injuries at MTRH seems inadequately studied. Understanding the risk factors for psychiatric morbidity among patients with facial injuries will enable more effective treatment and inform health practitioners on factors that greatly increase the chances of patients presenting with psychiatric morbidity.

2. Statement of the Problem

The number of patients with facial injuries across the world is high. It was estimated that 569000 people in the United Kingdom live with facial disfigurement [5] and in developing countries, maxillofacial injuries account for between 16% and 93.3% of all injuries seen at the maxillofacial outpatient clinic [6,7]. These patients have significant long term and short term psychiatric morbidity that leads to poor quality of life, complicated surgical outcome and increase in the cost of care [8,9]. Effective psychological treatment of psychiatric morbidity among patients with facial injury remains limited [10].

Patients with facial injury are likely to have depression, anxiety, alcohol use disorder, other substance use disorder, and body dysmorphic disorder [11-13]. If these problems are not well identified and treated early enough they may complicate the physical recovery and subsequent compliance to treatment and follow up [14].

Facial injury patients who attend general surgery clinic, plastic surgery clinic and those admitted at MTRH are not routinely screened and managed for psychiatric disorders. Therefore, the burden of psychiatric morbidity among patients with facial injury at MTRH is not documented.

3. Objectives

1. To establish the pattern of psychiatric morbidity among patients with facial injury at MTRH.
2. To assess the associations between causes of facial injury/socio-demographic characteristics and psychiatric morbidity among patients with facial injury at MTRH.

4. Methods

This section, highlights the methods used in conducting this research.

4.1 Study site

This study was conducted at general surgical inpatient wards, burns unit, maxillofacial outpatient clinics, and plastic surgery clinics at Moi Teaching and Referral Hospital (MTRH) in western Kenya. MTRH is located along Nandi road in Eldoret town in Uasin Gishu County in former Rift Valley province. This hospital is the second largest national teaching and referral hospital in Kenya serving approximately 16.24 million people from western Kenya, Nyanza region, north rift valley region, South Sudan and eastern Uganda (www.mtrh.or.ke). Currently, it has about 800-bed capacity, of which 48 beds are for female surgical and 43 beds for male surgical patients. It has about 100%-150% bed occupancy at any point in time. It offers both inpatient and outpatient services and specialized services such as kidney transplant, plastic surgery, child and adult psychiatry, alcohol and other substance of abuse rehabilitation among others. The plastic surgery clinic is held every Tuesday while the surgical outpatient clinic every Friday in room 60 and 61.

4.2 Study population

The study population were patients who presented at MTRH with facial injury; these are injuries involving the face, from the hairline to the mandible angle, resulting from any cause. Only those who met inclusion criteria were recruited.

4.3 Eligibility criteria

The study participants were selected using an exclusion and inclusion criteria.

4.4 Inclusion criteria

The inclusion criteria involved patients seen at plastic surgery and maxillofacial surgery outpatient clinics of MTRH with facial injuries; the patients admitted to general surgical wards and burns unit of MTRH due to facial injury and Patients above 18 years of age diagnosed with facial injuries at MTRH.

4.5 Exclusion criteria

The exclusion criteria involved patients with facial injury admitted because of other major surgical conditions as determined by the admitting medical officers and patients with facial injury on theatre list for operation and those within 48 hours post operation to avoid preoperative or post-operative anxiety, depression, acute stress etc.

4.6 Sample size

The researcher did a census study on the whole population of patients with facial injuries at Moi teaching and referral hospital. According to hospital data in 2015, only 98 patients were diagnosed with facial injury. With these small population,

it was worth interviewing all participants who made inclusion criteria because this could increase the power of the study and reduce selection bias.

4.7 Research design

The study employed a descriptive cross sectional research design.

4.8 Study participant recruitment and enrollment

All patients with facial injuries (174 participants) who sought services at plastic surgery clinic, maxillofacial surgery clinic and those who were admitted in general surgery wards of MTRH were enrolled in the study. Seventy-nine (79) participants did not meet inclusion criteria. Five patients made inclusion criteria but declined to take part in the study. Two participants cited lack of interest in the study while three participants said they were in a hurry. Ninety (90) participants were therefore interviewed for the study from January 2017 to December 2017. Diagram one below illustrates the steps taken during this study (FIG. 1).



FIG. 1. Recruitment schema.

4.9 Data collection methods

The data on psychiatric morbidity was collected using the mini international neuropsychiatric interview (M.I.N.I.) version 7 and the socio-demographic data collected using researcher formulated face to face structured interview.

4.10 Study implementation

Following the approval by the IREC the researcher applied and obtained an authority letter from the hospital administration authorizing him to carry out the research in the hospital. Participation was not mandatory; only willing participants were allowed to participate. In addition, the participants were free to terminate the session at any time and not to answer questions that they felt they did not wish to respond to.

4.11 Study instruments

4.11.1 Socio-demographic data and clinical questionnaire.

This is a researcher-designed questionnaire that captures identification data and relevant demographic variables such as, sex, age, religion, marital status, occupation and level of education. It also captures clinical variables such as previous history of mental illness, causes of facial injuries and surgical diagnoses. It is a face to face researcher administered questionnaire. It was administered in Kiswahili or English language.

4.11.2 The mini international neuropsychiatric interview questionnaire version 7

This is an interviewer administered questionnaire that was designed to quickly capture major axis I psychiatric disorders including suicidality in DSM-5 and ICD-10. It has been used in different set up with high validity and reliability. Validation and reliability studies have been done to compare M.I.N.I. and CIDI and SCID-P and was found to have high scores, (>0.6). Has specificity of 0.72 to 0.97, inter-rater of 0.88 to 1.00 and test retest reliability of 0.76 to 0.93 [15]. The tool can be administered in approximately 18.7+- 11.6 minutes. Require brief training for clinicians [16]. However it has not been validated in Kenya though has been used in several studies with comparable results [17]. It's available in multiple languages including Kiswahili, easy to administer and comprehensive with good reliability and validity. It is also an interviewer administered face to face structured interview.

4.12 Data management and analysis

The data collection tools; the M.I.N.I. and the clinical and socio-demographic questionnaires were coded during the design. Data cleaning was done to check for completeness and inconsistencies at the end of each day. Data was entered into Epi Info, a statistical software for epidemiology developed by Centers for Disease Control and Prevention (CDC). Data analysis was done per objective at 95% confidence interval. Descriptive statistics was done for both continuous data and categorical data. Pearson's Chi-square test was used to test for association between the outcome and the categorical predictors. Two sample t-test was used to compare the means for continuous predictors. Logistic regression was used to measure association between psychiatric morbidity and socio-demographic/clinical variables. Results were presented using tables, and narratives.

4.13 Findings

The study evaluated a total of 90 participants as illustrated in TABLE 3. Majority of these patients (77%) were male. The mean age of the participants evaluated was 32 ± 11 years. Twenty-four participants (27%) were below 25 years, thirty (38%), were between 25 to 34 years and only five participants (6%) were above 55years old. Slightly over half of the participants interviewed (56%) were married, thirty-three (37%) were single and the rest were widowed, separated or divorced. As shown,

over a half had attained a primary level of education (56%) only, while 16% had attained tertiary level of education (university 3% and middle level college 13%). Most respondents were Christian (91%), half (51%) were self-employed while casual laborers were 40%. Majority resided in rural areas 71%.

As shown in TABLE 1, the prevalence of any psychiatric disorders among patients with facial injuries at MTRH was 61%. A higher proportion of male participants had psychiatric morbidity as compared to females. However, this was not statistically significant (62% vs 57% p-value 0.67). According to the table, 20% of the total interviewed patients with facial injuries had major depressive disorder. Compared to male participants, female participants had higher proportions of major depression and post-traumatic stress disorders 29% vs 17% p-value 0.262 and 19% vs 16% p-value 0.738 respectively. Similarly, female participants with facial injuries were found to have higher proportions of agoraphobia 14% vs 3%, p-value 0.081, and social anxiety disorders 14% vs 10% p-value 0.693.

TABLE 1: Show distribution of different psychiatric disorders by gender among 90 participants with facial injuries at MTRH from January to December 2017.

Variable	Male n=69(77)	Female n=21(23)	Total n=90(100)	P value	Tests done
Psychiatric morbidity	43(62)	12(57)	55(61)	0.67	Pearson's Chi square
Major Depressive Disorder n(%)	12(17)	6(29)	18(20)	0.262	Pearson's Chi square
Suicidal attempt n(%)	3(4)	1(5)	4(4)	1.00	Fisher's exact test
Manic and Hypomanic Episode n(%)	4(6)	1(5)	5(6)	1.00	Fisher's exact test.
Panic Disorder n(%)	1(1)	2(10)	3(3)	0.135	Fisher's exact test
Agoraphobia n(%)	2(3)	3(14)	5(6)	0.081	Fisher's exact test
Social Anxiety Disorder n(%)	7(10)	3(14)	10(11)	0.693	Fisher's exact test
Obsessive Compulsive Disorder n(%)	1(1)	0(0)	1(1)	1.00	Fisher's exact test
Post-Traumatic Stress Disorder n(%)	11(16)	4(19)	15(17)	0.738	Pearson's chi square
Alcohol use disorder (Past 12 Months)	24(35)	1(5)	25(28)	0.007	Pearson's chi square
Substance Use Disorder Past 12 Months	13(19)	0(0)	13(14)	0.032	Pearson's chi square
Psychotic Disorders n(%)	5(7)	4(19)	9(10)	0.205	Fisher's exact test
Generalized Anxiety Disorder (Current)	0(0)	2(10)	2(2)	0.052	Fisher's exact test
Antisocial Personality Disorder (Lifetime)	2(3)	1(5)	3(3)	0.554	Fisher's exact test

The proportion of female with psychotic disorders were higher compared to males 19% vs 7% p-value 0.205. All the above were not statistically significant.

The proportion of participant with alcohol use disorder was 28%. More males compared to females were diagnosed with this disorder 35% vs 5% p-value 0.007. Similarly, among the participant, males were found to have had substance use disorders in the previous 12 months (19% vs 0% p-value 0.032). There was a significant difference between males and females with alcohol and other substance use disorders (p-value 0.007 and 0.032 respectively). In summary, females showed much higher levels of psychiatric disorders as compared to males apart from substance use disorder and alcohol use disorder. There was no statistical difference between male and female participants except for alcohol and substance use disorders.

TABLE 2 shows the frequency of comorbidities gender among 90 participants with facial injuries at MTRH from January to December 2017. The prevalence of psychiatric morbidity was 61.1% (55 participants). Of this, 47.3% (26 participants) were diagnosed with more than one disorder. From this table, 14.4% had two disorders 7.8% had three disorders while 6.6% had more than three disorders

TABLE 2. Shows the frequency of comorbidities gender among 90 participants with facial injuries at MTRH from January to December 2017.

Sum_disorder	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	35	38.89	35	38.89
1	29	32.22	64	71.11
2	13	14.44	77	85.56
3	7	7.78	84	93.33
4	4	4.44	88	97.78
5	1	1.11	89	98.89
6	1	1.11	90	100.00

TABLE 3. Distribution of socio- demographic variables by gender among 90 participants with facial injuries at MTRH from January to December 2017.

Variable	Male n=69(77%)	Female n=21(23%)	Total n=90(100%)
Residence			
Urban	18(26)	8(38)	26(29)
Rural	51(74)	13(62)	64(71)
Age mean(sd)	32±11	32±13	32±11
Age Category n (%)			
17 to 24	19(28)	5(24)	24(27)
25 to 34	24(35)	10(48)	34(38)
35 to 44	16(23)	3(14)	19(21)
45 to 54	7(10)	1(5)	8(9)
Above 55	3(4)	2(10)	5(6)
Marital Status n (%)			

Single	26(38)	7(33)	33(37)
Widowed	0(0)	1(5)	1(1)
Divorced	1(1)	0(0)	1(1)
Married	39(56)	11(52)	50(56)
Separated	3(4)	2(10)	5(6)
Religion n (%)			
Christian	61(88)	21(100)	82(91)
Muslim	0(0)	0(0)	0(0)
Hindu	0(0)	0(0)	0(0)
African Traditional Church	0(0)	0(0)	0(0)
Others	8(12)	0(0)	8(9)
Occupation n (%)			
Government Employed	1(1)	1(5)	2(2)
Private Sector Employment	20(29)	6(29)	26(29)
Self-Employment	37(54)	9(43)	46(51)
Unemployed	11(16)	5(24)	16(18)
Nature of Employment n (%)			
Permanent	5(7)	2(10)	7(8)
Casual	29(42)	7(33)	36(40)
Contracts	6(9)	3(14)	9(10)
Business	22(32)	5(24)	27(30)
Level of education n (%)			
University	2(3)	1(5)	3(3)
College	7(10)	5(24)	12(13)
Secondary	17(25)	8(38)	25(28)
Primary	43(62)	7(33)	50(56)

4.14 Causes of facial injuries

Deeper analysis of the findings revealed that the commonest causes of facial injuries were accidents such as road traffic accident, fall from heights and occupational accidents (57%), followed by interpersonal injuries such as fights (30%) and burns (12%). Self-inflicted injuries accounted for only 1%. The commonest diagnosis was facial soft tissue injuries such as a cut wound, eyeball burst, lip tears. This accounted for 27%, followed by maxillary fractures and unspecified facial injury 23% each. The facial burns accounted for 14% while mandible fractures were 12%.

Compared to participants without psychiatric morbidity, a significantly higher proportion of participants whose injuries were caused by burns and interpersonal violence were diagnosed with a psychiatric morbidity (14% vs 9%) and (38% vs 17%) respectively (p-value 0.032). However, a significantly lower proportion of participants whose injuries were caused by road traffic accidents were diagnosed with a psychiatric morbidity 46% vs 76% (p-value 0.032).

As shown in Table 4, the place of interview and the surgical diagnosis had no statistical difference between participants with psychiatric morbidity and those with no psychiatric morbidity.

TABLE 4. Association of clinical variables and psychiatric morbidity among 90 participants with facial injuries at MTRH from January to December 2017.

Variables	Psychiatric Morbidity: Yes n=55, (61%)	Psychiatric Morbidity: No n=35, (39%)	Total (n=90)	P – Value	Tests done
Causes of Facial Injury n (%)					
Burns	8(14)	3(9)	11(12)	0.032	Pearson's chi square
Accidents (Road Traffic falls?)	25(46)	26(74)	51(57)		
Interpersonal violence (Fights)	21(38)	6(17)	27(30)		
Diagnosis n (%)					
Facial burns	10(18)	3(9)	13(14)	0.138	Pearson's chi square
Facial STI	15(27)	9(26)	24(27)		
Mandible fracture	8(14)	3(9)	11(12)		
Maxillary/orbital fracture	8(14)	13(37)	21(23)		
Unspecified facial injury	14(26)	7(20)	21(23)		

5. Discussion

5.1 Patterns of psychiatric disorders.

My study reveals that the most frequently occurring mental disorder was alcohol use disorder 28%, followed by anxiety disorder 24.4% depression 20%, substance use disorders 14%, Psychotic disorders 10%, Mania and hypomanic episodes 6%, suicidal attempt 4%, and antisocial personality 3%. In comparison, Wilson found depression 29%, alcohol use disorder 2%,

PTSD 23% general anxiety disorders 21%, drug dependence 5%, drug abuse 1% any alcohol/ drug dependence/ drug abuse 11% [18]. This could be because of different tool and methodology used.

5.2 Alcohol and substance use disorders

Murphy observed the need to screen for alcohol and substance use disorder and refer patients for specialized treatment by the maxillofacial and other trauma surgeons [19]. This is because alcohol use disorder and substance use disorder are highly prevalent among patients with facial injury. They interfere with wound healing and they are also risk factors for facial injury. In this study, the commonest occurring psychiatric disorder was alcohol use disorders with a prevalence of 28%. I found that men had a significantly higher prevalence than women (35% vs 5% p-value 0.007). The prevalence of substance use disorder was 14%. The participants with substance use disorders were mainly male. Murphy et al. [13] in 2009 found 58% of patient who presented with intentional facial injury at an urban hospital had problem drinking more than 50% had illicit substance use and 25% had problem drug use [13]. In a study done in Brazil in Restauração Hospital in 2016, the researcher found a higher prevalence of 46% moderate use and 39% risk use of alcohol using the AUDIT scale. Just like our study majority were men 86% [20]. Another study in Brazil by Carvalho et al. [21] found alcohol and substance use prevalence of 41.1% among patient with facial injury. This was a retrospective study. Majority 91% were also male [21].

Similarly, in South Africa McAllister in 2013 found a higher prevalence of alcohol use (40%) and illicit substance use (47%) [22].

The difference in prevalence could be because of different tool used, while Soares et al. [20] in 2016 used AUDIT in this study, MINI was used. Screening tools such as AUDIT tend to report higher rates than diagnostic tools. Different methodology can explain why McAllister's and Carvalho's are different. McAllister, in addition to interview, did urine sample testing [22] while Carvalho did a retrospective study. Some participants might not be willing to give true information concerning their alcohol drinking behavior.

Regions with higher economic wealth like the United States of America, South Africa and Brazil have a higher prevalence of alcohol consumption. According to WHO 2018 report on global status on alcohol and health, “the greater the economic wealth of a country, the more alcohol is consumed and the smaller the number of abstainers” (WHO 2018). From the same study by WHO 2018, it's stated that prevalence of alcohol use is high in America region, European region and Western Pacific regions compared to African region and the Mediterranean region (WHO 2018).

5.3 Depression and Anxiety

This survey found the prevalence of anxiety disorder to be 25.6% and depression to be 20%. The proportion of depression and anxiety was higher in women than men. Social anxiety disorder accounted for 11%, panic disorders 3%, generalized anxiety disorder 2%, agoraphobia 6% and posttraumatic stress disorder 17%. In a study by Islam et al in 2010 among UK population with facial injuries, the prevalence of depression was 20% while anxiety was 20.4% [23]. Similarly, in Nigeria Nwashindi et al. [24] found the prevalence of depression among patients with facial injuries to be 20% and that of anxiety to be 21% [24]. However higher prevalence of depression 29% and anxiety 48% were found by Rahtz et al. [25] in their study at

the Royal London hospital [25]. This high prevalence might be because Rahtz's study was a prospective study as opposed to descriptive cross-sectional study and self-reporting as opposed to interviewer administered.

Different risk factors place a patient with facial injury at a higher risk of anxiety and depression than the general population. Some of these factors include unemployment, lower education level, poor social support which is reported to be higher among patients with facial injury compared to general population [26]. Facial disfigurement leads to a negative self-image which coupled with other factors may increase prevalence of anxiety and depression among people with facial injury [27]. Other medical, social, psychological, and personal factors may increase the risk of developing depression and anxiety among patients with facial injuries [28].

5.4 Posttraumatic stress disorder

In this study, the prevalence of posttraumatic stress disorder was 17%. This is lower than what other researchers found. Bison found 27% [8] Roccia found 26% [29] while Glenn found 22.7% [12]. Lui notes that, patients who have good social support were found to have lower rates of PTSD [12]. This could explain these differences in prevalence because most patients with trauma in Kenya get good social

5.5 Socio-demographic and clinical characteristics

Compared to facial burns, being diagnosed with maxillary/orbital fractures was significantly associated with reduced odds of having psychiatric morbidity. However, no statistically significant association between psychiatric morbidity and different causes of facial injuries such as burns, accident and violence. This seems to concur with previous research that found no association between psychiatric morbidity and type of facial injury hence suggesting that irrespective of the type of facial injury acquired, the percentage of psychiatric morbidity will be the same across the facial injury patients. For instance, Wilson et al. [18] looked at multiple psychiatric disorders among patients with facial injury in the United Kingdom and found no association between psychiatric morbidity and type of facial injuries at 1 to 9 months post facial injuries [18].

However, in contrast, Prashanth et al. [30] did comparative studies on the severity of anxiety and depression among disfigured and non-disfigured facial injury patients. He found a significant difference between these two groups with disfigured having higher severity of the disorders. Female gender was highly associated with anxiety and depression compared to male gender in patients below 50 years. However above 50 years gender was not a significant factor associated with either depression or anxiety [30]. This seems to concur with the findings where it was found that a larger percentage of females faced psychiatric morbidity compared to males.

These differences could be explained by different study designs, while this study did a cross-sectional study Prashanth et al. [30] did a comparative study. Also, this study did not compare disfigured verses no disfigured in our study. They also looked at only depression and anxiety while in our study we looked at several psychiatric morbidities. Therefore, the difference in methodology could explain differences in findings.

In another contrasting study at a university hospital in the United Kingdom, female gender, presence of a permanent facial scar, past psychiatric history, and self-perception of the disfigured face was found to be associated with depression however

only female gender was associated with anxiety disorder among facial trauma patients [23]. Female gender was also noted to be associated with depression among patients with facial injuries [29]. In this study, there was no inclusion of variables such as the perception of disfigurement and permanent scars.

However, Hoogewerf found no association between the severity of facial burn scars and depression and self-esteem [31]. This is unlike Tebble who found the length of scar more than 4 cm, being single and assault were associated with high scores of anxiety [32].

In Nigeria, female gender, being employed and being single was statistically significantly associated with depression and anxiety among patients with facial injuries [24].

The differences between this study and these other studies are that most of these studies were looking at the association of depression and anxiety and facial injuries. However, in this study, several psychiatric morbidities were looked at. The tools used were mainly HADS while the MINI tool was used in this study. The studies were done in different countries with different culture and different understanding of mental illnesses.

6. Conclusion

The prevalence of psychiatric morbidity at MTRH was 61%, of this 47.3% were diagnosed with more than one disorder. This prevalence is higher than the general population prevalence.

Prevalence of alcohol use disorder was 28%, anxiety disorders 25.6%, depressive disorder 20%, other substance use disorders 14%, psychotic disorders 10%, and antisocial personality disorders 3%.

Compared to facial burns, being diagnosed with maxillary/orbital fractures was significantly associated with reduced odds of having psychiatric morbidity. However, no statistically significant association between psychiatric morbidity and different causes of facial injuries such as burns, accidents and violence.

7. Recommendation

There is need for routine screening, assessment and early further comprehensive management of the patients with facial injury found to have psychiatric morbidity.

This will improve quality of life, reduce surgical complications, hospital stay and cost of care to patients with facial injury. Prevention strategies for alcohol and other substance use disorders should be initiated targeting particularly males.

Following high prevalence of psychiatric morbidity among patients with facial injury at MTRH, there is need to do a longitudinal study to assess temporality of outcome and predictors.

REFERENCES

1. Association, A. P. Diagnostic and statistical manual of mental disorders (DSM-5®): American Psychiatric Pub; 2013.
2. Association, D.-A. P. Diagnostic and statistical manual of mental disorders. Arlington: American Psychiatric Publishing; 2013.
3. Gandjalikhan-Nassab SAH, Samieirad S, Vakil-Zadeh M, et al. Depression and anxiety disorders in a sample of facial trauma: A study from Iran. *Medicina Oral, Patología Oral y Cirugía Bucal*, 2016;21(4):e477-82.
4. Bradbury E. Meeting the psychological needs of patients with facial disfigurement. *Br J Oral Maxillofac Surg*. 2012;50(3):193-196.
5. Faces C. Disfigurement in the UK; 2017.
6. Majambo M, Sasi R, Mumena C, et al. Prevalence of oral and maxillofacial injuries among patients managed at a teaching hospital in Rwanda. *Rwanda Journal of Health Sciences*. 2013;2(2):20-24.
7. Singaram M, G SV, Udhayakumar RK. Prevalence, pattern, etiology, and management of maxillofacial trauma in a developing country: a retrospective study. *J Korean Assoc Oral Maxillofac Surg*. 2016;42(4):174-18.
8. Bisson JI, Shepherd JP, Dhutia M. Psychological sequelae of facial trauma. *J Trauma*. 1997;43(3):496-500.
9. Ukpong DI, Ugboko VI, Ndukwe KC, et al. Health-related quality of life in Nigerian patients with facial trauma and controls: a preliminary survey. *Br J Oral Maxillofac Surg*. 2008;46(4), 297-300.
10. De Sousa A. Psychological issues in acquired facial trauma. *Indian J Plast Surg*. 2010;43(2); 200.
11. Islam S, Ahmed M, Walton GM, et al. The prevalence of psychological distress in a sample of facial trauma victims. A comparative cross-sectional study between UK and Australia. *Journal of Cranio-Maxillofacial Surgery*. 2012;40(1):82-85.
12. Lui A, Glynn S, Shetty V. The interplay of perceived social support and posttraumatic psychological distress following orofacial injury. *J Nerv Ment Dis*. 2009;197(9);639.
13. Murphy DA, Shetty V, Resell J, et al. Substance use in vulnerable patients with orofacial injury: prevalence, correlates, and unmet service needs. *J Trauma*. 2009;66(2):477.
14. Islam S, Hooi H, & Hoffman GR. Presence of Pre-Existing Psychological Comorbidity in a Group of Facial Injured Patients: A Preliminary Investigation. *J Oral Maxillofac Surg*. 2009;67(9):1889-94.
15. Lecriubier Y, Sheehan DV, Weiller E, et al. The Mini International Neuropsychiatric Interview (MINI). A short diagnostic structured interview: reliability and validity according to the CIDI. *European Psychiatry*. 1997;12(5):224-231.
16. Sheehan DV, Lecriubier Y, Sheehan KH, et al. The Mini-International Neuropsychiatric Interview (MINI): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *Journal of clinical psychiatry*. 1998;59 (20):22-33.
17. Kwobah E, Epstein S, Mwangi A, et al. PREVALENCE of psychiatric morbidity in a community sample in Western Kenya. *BMC psychiatry*, 2017;17, 30.
18. Wilson N, Holmes S, Heke S, et al. Prevalence and predictive factors of psychological morbidity following facial injury: a prospective study of patients attending a UK maxillofacial outpatient trauma clinic. *Br J Oral Maxillofac Surg*. 2015;53(10):e74.
19. Murphy DA. Substance Use and Facial Injury. *Oral Maxillofac Surg Clin North Am*. 2010;22(2):231-238.

20. Soares-Carneiro SCdA, Vasconcelos BC, Matos da-Silva GSM, et al. Alcohol abusive use increases facial trauma? *Med Oral Patol Oral Cir Bucal.* 2016;21(5):e547-e553.
21. Carvalho TBO, Cancian LRL, Marques CG, et al. Six years of facial trauma care: an epidemiological analysis of 355 cases. *Braz J Otorhinolaryngol.* 2010;76(5), 565-574.
22. McAllister P, Jenner S, Laverick S. Toxicology screening in oral and maxillofacial trauma patients. *Br J Oral Maxillofac Surg.* 2013;51(8):773-778.
23. Islam S, Ahmed M, Walton GM, et al. The association between depression and anxiety disorders following facial trauma—A comparative study. *Injury.* 2010;41(1), 92-96.
24. Nwashindi A, Dim E, & Saheeb B. Anxiety and depression among adult patients with facial injury in a Nigerian Teaching Hospital. *Int J Med Biomed Res.* 2014;3(1):5-10.
25. Rahtz E, Bhui K, Hutchison I, et al. Are facial injuries really different? An observational cohort study comparing appearance concern and psychological distress in facial trauma and non-facial trauma patients. *J Plast Reconstr Aesthet Surg.* 2018;71(1):62-71.
26. Levine E, Degutis L, Pruzinsky T, et al. Quality of life and facial trauma: psychological and body image effects. *Ann Plast Surg.* 2005;54(5):502-510.
27. McGrouther DA. Facial disfigurement. *BMJ (Clinical research ed.).* 1997;314(7086):991-991.
28. Cunningham SJ. The psychology of facial appearance. *Dent Update.* 1999;26(10):438-443.
29. Roccia F, Dell'Acqua A, Angelini G, et al. Maxillofacial trauma and psychiatric sequelae: post-traumatic stress disorder. *J Craniofac Surg.* 2005;16(3):355-360.
30. Prashanth NT, Raghuveer HP, Kumar RD, et al. Post-traumatic Stress Disorder in Facial Injuries: A Comparative Study. *J Contemp Dent Pract.* 2015;16(2), 118-125.
31. Hoogewerf CJ, van Baar ME, Middelkoop E, et al. Impact of facial burns: relationship between depressive symptoms, self-esteem and scar severity. *Gen Hosp Psychiatry.* 2014;36(3):271-276.
32. Tebble NJ, Adams R, Thomas DW, et al. Anxiety and self-consciousness in patients with facial lacerations one week and six months later. *Br J Oral Maxillofac Surg.* 2006;44(6), 520-525.