Prevalence of Psychiatric Morbidity among Road Traffic Accident Victims at the National Orthopaedic Hospital, Igbobi Lagos

[1]B.L Ajibade, [2]Ejidokun Adeolu,[3]Oyewole Adeoye, [4]Adeyemo Moridiyat O.A., [5]Oladeji M.O.

[1, 4, 5]*Ladoke Akintola University Of Technology Ogbomoso, Dept Of Nursing Science, College Of Ehlath Sciences, Osogbo*
[2] *Neuro Psychiatric Hospital School Of Nursing Yaba   Lagos*
[3]*Lautech Teaching Hospital Ogbomoso*

ABSTRACT
Introduction:- Psychiatric morbidity and road traffic injury are two major neglected epidemologies contributing greatly to the burden of disease globally. Road accidents have emerged as a major cause of psychiatric morbidity with motor vehicle accident identified as a single leading cause of psychological disorders in the survivors of road traffic accident. Despite these, they are often poorly detected an managed, thus this study aimed at estimating the prevalence of psychiatric morbidity in inured road accents victims at the national orthopaedic hospital Igbobi.
Methodology: This study was a descriptive cross sectional design in which GHQ 28 and short civilian version of post traumatic stress disorder check list were used to estimate the prevalence of psychiatric morbidity and identify common psychiatric conditions among population studied. A total of 400 subjects participated using one stage assessment. Prevalence of psychiatric morbidity was determined by GHQ-28 subscales and PTSD short civilian version was also used to identify psychiatric conditions among the studied population. The data were analysed using SPSS 20.0. Relationship between accidents variables and psychiatric morbidity were tested using chi-square method.
Results – The result should that the prevalence of psychiatric morbidity among respondents was 65.2%, and was higher among those who were between 26 and 35 years of age; mean age was 39.4 #14.9 years, range was 15 to 84 years. Identified psychiatric conditions include; post traumatic stress disorders, anxiety, somatisation, social dysfunction and service depression. Psychiatric morbidity has no significant relationship with socio-demographic variables ,but some accident variables such as length of time post accident, types of accident previous accident experience immediate reaction post accident and perceived effect of the accident in life were strategically associated with psychiatric morbidity (P<0.05)
Conclusion:- Psychiatric conditions are highly prevalent among patients at trauma and injury centres trauma health care workers need high level of knowledge and training in the detection of these disorder. Beyond these there need for promoting counselling services and necessary consultation liaison psychiatric services in trauma are units
Key words : Prevalence, Psychiatric morbidity

I.   INTRODUCTION

Road traffic accident (RTA) is when a road vehicle collides with another vehicle, pedestrian, animal, geographical or architectural obstacles. The RTAs can result in injury, property damage and death, RTA results in the death of 1.2 million people worldwide each year and an injury about 4 times this number. The morbidity and mortality burden from road traffic accidents in developing countries is rising due to a combination of factors including rapid motorisation poor road and traffic infrastructure as well as the behaviour of road users especially in Nigeria where motorcade and tricycles have become regular means of transportation[2] injuries are becoming recognized as a leading cause of global death and disability with road traffic injuries (RTIs) being the greatest contributor [3,4] Injuries' due to road traffic crashes are projected to be the second leading cause of lost disability adjusted life years (DALUS) in developing countries by 2020[5]. Mortality due to RTI in Africa is among the highest in the world, it has been estimated at 28.3 deaths per 100,000 populations [6, 7]. The economic costs associated with RTIs in Africa were estimated to be US& 3.7 billion in 200 translating to approximately 1-2% of each country's gross national product 8,9 According to the world Health organization (WHO), RTIs ranked as the 11th leading cause of death DALYS lost from unintentional injuries 10. In the 1990s, the cost of RTIs for Nigeria was estimated to be >us &25million, an amount that is thought to have greatly increased in the past two decades. The overall road traffic injuries was 1.6per 1000 population, the   rates found for rural and urban were

however not significantly different and the economic implication was not calculated[6]. Psychiatric morbidities are medical conditions that disrupt a person's thinking feelings mood, ability to relate to others and daily functioning. Psychiatric morbidities are medical conditions that often result in a diminished capacity for coping with ordinary elements of life. Psychiatric morbidities are not the exclusive preserve of any special group. They are found in people of all religions, all countries and all societies[12]. They are present in women and all men at all stages of life course. They can affect persons of any age, race, creed or income. They can affect more than 25% of all people at sometime during their lives. They point prevalence in adult population at any given time is about 10% also around 20% of all clients seen by health care providers have one or more psychiatric morbidities[12].

Concept of Mental Health: Mental health has been defined as a state of successful performance of mental function, resulting in productive activities, fulfilling relationships with other people, and the ability to adapt to change and to cope with adversity[13]. The world Health Organization stated that, mental health is not simply the absence psychiatric morbidity and the absence of mental disablement (i.e. impairment, disabilities and handicaps) but it is also the mental and social well-being of the individual 13.

Psychiatric Morbidity: Psychiatric Morbidities are characterized by psychological and behavioural symptoms, resulting from changes in one's attention, concentration, memory and judgment. Changes in these mental functions lasting from a prolonged duration cause abnormalities in speech and behaviour, which may differ from socially and culturally accepted norms such changes in mental functions can also cause varying degrees of distress to individuals, their families, at times, the community. Psychological and behavioural symptoms may also result in impairment in personal and occupational functioning. Psychiatric morbidities refer to many mental health conditions characterized by abnormal behaviour[14]. Psychiatric morbidity as a clinically significant behavioural or psychological syndrome or pattern that occurs in an individual, associated with present distress, or disability, or with a significant increased risk of suffering, but no definition adequately specifics precise boundaries for the concept of psychiatric morbidity, different situations call for different definition[15]. There is often a criterion that a condition should not be expected to occur as part of a person's usual culture or religion, psychiatric morbidity is typically characterized as involving distress, impaired cognitive functioning, atypical behaviour and/or maladaptive behaviour [16,17].

Trend in Road Traffic Injuries: - The number of vehicles per inhabitant is still low in Africa; less than one licensed vehicle per 100 inhabitants in low-income Africa Versus 60 in high-income countries. Fleet growth leads to increased road insecurity in developing countries[18].
This explains, for example, the report 400% increase in road deaths in Nigeria between the 1960s and the 1980s. Available historical data from developed countries show that it is only when a development threshold is achieved that the road mortality start to decrease[6,7] such a threshold is far from being reached in sub-Saharan Africa. Indeed, in South Africa, the most developed African country, there were already [17] licensed vehicles per 100 inhabitants in 2005, and no decline in road traffic deaths has been observed so far[18]. A comprehensive literature review published in 1997 showed that pedestrians accounted for between 41% and 75% of all road traffic deaths in developing countries [19]. In Africa, pedestrians and passengers of public transportation are the most affected[20]. They represented 80% of all road traffic deaths in Kenya in 1990 and 67% of all road traffic injuries as recorded in Ghana in the 1989-1991 period[20]. Pedestrians alone accounted for 55% of road traffic deaths in Mozambique in the 193-2000 period and 46% of road traffic deaths in Ghana between 1994 and 1998[18,20]. This large proportion of vulnerable road users is explained by a traffic mix of incompatible users (pedestrians, cyclists, motorbikes, cars and trucks) with, for example, communities living within the vicinity of roads or the lack of pavement along large urban streets. Road traffic accidents and injuries is a public health problem worldwide. A lot of people die as a result of road traffic accident and millions of people are injured and disabled. It is the eleventh cause of death and accounts for 2.1% of all deaths globally, and injuries from road traffic accidents accounts for one third ($^1/_3$) of admissions and fifth (5th) cause of death in hospitals worldwide.

Road Traffic Injury and Psychiatric Morbidity: - Studies have shown that while acute stress symptoms exhibited by most traffic accident victims' resolve within a few weeks, a significant portion of this population still display symptoms 6 to 8 months after the accidents[21,22]. Morbidity in the US is majorly caused by accidents involving motor vehicles and therefore it makes vehicles one of the leading causes of deaths in the country with 3.5million reported victims annually[23]. The government closely monitors motor vehicle accidents (MVA) because they cause many issues to their victims apart from increased deaths, such as psychological issues that are severe among many other issues[14,24]. Some studies that were conducted in 2004 have MVAs as among major causes of psychiatric morbidity among victims affected by accident[25]. Over 50million casualities that result from accident due to motor vehicles in each calendar period. Twenty-eight victims in a total of 1000 victims that are affected usually turn out to have post-traumatic stress disorder (PTSD) with stress being one of the symptoms

exhibited: following this high number of psychiatric morbidity victims that result from road accidents, it is necessary to diagnose the disorder early so that primary care can be given early with the victims receiving medication early[25]. Coronal et al. Carried out a survey that wanted to ascertain the existence of various symptoms of PTSD among patients that are affected by accidents from motor vehicles in various part in US. In the study, they sampled respondents that were experience emotional distress hence; suffering from PTSD[26]. The survey established that patients in the adaptive copers group depicted few or less features of PTSD such as anxiety and depression as compared to the dysfunction and maladaptive categories from the outcome of the study, it was concluded that it was easy for patients in the dysfunction and interpersonally distressed groups to have trauma and therefore developed PTSD especially after being a victim of MVA. In another study conducted by Bryant and Harvey on the prediction of PSTD using immediate reactions from an accident, with a sample of 179 respondents who were MVA victims admitted in various hospitals, the study established that PTSD cases developed in patients with serious injuries as compared to patients that had minor injuries. Some of the symptoms exhibited by such patients included anxiety and depression that were predisposing factors to their long stay in hospital as compared to patients with minor injuries. Recovery memory is a significant issue related to trauma. The recovery memory refers to memory that has been dissociated or repressed as a result of their traumatizing effects[27]. According Mayou, Bryant and Duthie, psychopathology is common among victims that have suffered from accidents resulting form motor vehicles. In their study on the same population, the prevalence of the condition was high among such patients and therefore there is a high correlation between the existence of the condition and development of PTSD[22]. In a more comprehensive study on 546 patients of an accident clinic three years after a traffic accident, the group found point prevalence of PTSD of 11%[28]. Thus, a substantial proportion of traffic accident victims suffers from a chronic PTSD which can persist for years after the initial event. The question as to whether traffic accidents are also linked to a frequent occurrence of other mental disorders was not investigated in the studies named above. Studies in which clinical interviews were conducted with traffic accident victims indicated a frequent occurrence of depressive disorders, anxiety disorders and organic mental disorders24,28,29. In a Norwegian questionnaire study on the physical, psychological and social sequelae of 551 injured accidents victims, 32% reported that they still suffered from physical limitations three years after the accidents, often resulting in a reduction in quality of life. 19% of the participants in this survey felt impaired in their psychological health and 18% report a reduction in their ability to work28. Other frequent long term sequelae of traffic accidents include chronic pain ant physical impairments, legal disputes, impaired social relations, and problems at the work place [25,30]. In a study in Kenya 13.3% of the patients experiences psychiatric morbidity following car accident[31]. While, in a study in Turkey the incidence of this disorder following car crashes was estimated to be 30%32. Also in a study in tract involving 74 car accident patients, 32% of them were reported to experience psychiatric morbidity according to DSM-IV. Classification system after one year33. Some Western countries have also reported the prevalence of psychiatric morbidity in road accident trauma in the same range. For example, a study in Germany examining 179 patients with injury from car accidents after 6months of follow up showed that 18.4% had psychiatric morbidity according to interviews based on DSM-IVTR[34]. But a study in Taiwan on 64 patients the high incidence of 82.8% based on post-traumatic stress disorders reaction index was reported after one and a half month35. Also in a study in the United State up to 51% of 580 patients with road crashes based on the civilian Mississippi scale for post-traumatic stress disorder questionnaire experienced psychiatric morbidity[36]. In Enugu, South Eastern Nigeria, the prevalence of PTSD among RTA victims was estimated as 26.7%[37].

This study is therefore aimed at estimating the prevalence of psychiatric morbidity among road traffic accident victims at the National Orthopaedic hospital, Igbobi.

Objectives of the Study
1. To determine the prevalence of psychiatric morbidity among injured RTA victims at the National Orthopaedic Hospital, Igbobi.
2. To identify psychiatric disorder prevalent among injured RTA victims at the National Orthopaedic Hospital, Igbobi.
3. To describe the characteristics of people with psychiatric morbidity among the injured RTA victims at the National Hospital.
4. To determine the association between accident variables and psychiatric morbidity among injured RTA. Victims with Psychiatric morbidity at the National Orthopaedic Hospital, Igbobi.

II. METHODOLOGY

Research Design: - The study was a descriptive cross sectional research type. This designed was used to determine the prevalence of psychiatric morbidity among injured accident victims, identify psychiatric complications such as post traumatic stress disorder (PTSD), anxiety, somatisation, social dysfunction and severe depression that usually accompany road traffic injuries, as well as describe the characteristics and determine the relationship between the accident variables and psychiatric morbidity in the study population.

Research Setting: - The Study setting was the National Orthopaedi Hospital, Igbobi, located along the ever busy motor way, Ikorodu Road in Lagos State, South West of Nigeria. It was formerly a military Rehabilitation Camp for prisoners during the Second World War It became federal Government Health Institution in 1977. It is a 450 bedded Hospital, and has many training institutions for various categories of health workers.

Study Population: - The study population was the injured road traffic accident victims aged 15years and above, both males and females who were admitted in various units of the National orthopaedic Hospital, Igbobi.
Sample Size Determination: - Kish and Leslie (1965) formula was used to determine the sample size.

$$n = \frac{Z^2 pq}{d^2}$$

where n = sample size
Z = 1.96
P = 50%
d = error margin = 0.05
$$=> n = \frac{(1.96)^2 (0.5)(05)}{(0.05)^2} = \frac{0.9606}{0.0025} = 384.16$$
The sample size was rounded up to 400 for the purpose of attrition rate.
Sample Technique

Subjects were selected based on simple random technique. The case files of all patients were arranged together numbers alphabetically and convenient numbers was selected from each of the files. This was done for all the selected wards. The process was carried out unfit sample size was attained.
- **Inclusion criteria: -** The participated patients were injured road traffic accident victions on admission for not less than for weeks, who voluntarily consented to participate in the study.
- **Exclusion Criteria:** Road Traffic injured patients less than fifteen years of age, should not be in critical condition. Patients in critical care units (ICU & Burns centre), Emergency medical services unit and paediatric patients were excluded from the study.

III. METHODS AND MATERIALS

Data Collection Method: - One stage assessment that uses interview guided questionnaire was adopted for data collection in this study. Participants were approached with the assistance of the Nurses in the different units, the study was introduced and briefly described to subjects individually before completing the questionnaire. Some of the participants were assisted in completing the questionnaire by the trained research assistants having read the items on the questionnaire to them. The assistance was rendered because many of respondents were on tractions and plaster of Paris. Data collection lasted for four months (September to December, 2012).

Instruments: - The instruments for the study were standardize questionnaires which comprises of short Post Traumatic Checklist (civilian version) and General Health questionnaire. The demographic questionnaire was developed by the researcher based on the reviewed of pertinent. The questionnaire used for the study was divided into three section (A to C).
Section A – Demographic characteristics and accident variables
Section B – Post-traumatic stress scale – Items short Civilian version
Section C – General Health Questionnaire 28 items (GHQ 28).

Ethical Approval: - The approval to carry out the research was granted by the ethical committee of Lagos University Teaching Hospital.

Method of Data Analysis: - Median Score in GHQ-28 was used to determine psychiatric morbidity, score of 7 and above in subscale of GHQ was used to determine other psychiatric conditions such as anxiety, somatisation, social dysfunction and severe depression while a score of 3 or more was used to determine presence of PTSD. The data were then treated with statistical software SPSS version 20 and descriptive statistics were used to summarize the data, and presented in frequency tables.

RESULTS

The results were presented in tables

Table 1: Demographic Characteristics of Respondents

N=400

Demographic characteristics	Frequency	Percentage %
1. Age (years)		
15 -25	75	18.8
26 -35	122	30.5
36 -45	86	21.5
46 -55	48	12.0
56 -65	46	11.5
66 -75	22	5.5
76 and above	1	0.2
2. Gender		
Male	242	60.5
Female	158	39.5
3. Marital Status		
Married	243	58.5
Single	150	37.5
Widowed	7	1.8
Divorced	9	2.2
4. Level of education		
No formal education	24	6.0
Primary school	52	13.0
Secondary school	140	35.0
Post-secondary education	184	46.0
5. Religion		
Christianity	286	71.5
Islam	112	28.0
Traditional	2	0.5
6. Employment		
Employed	248	62.0
Unemployed	152	38.0

From the above table, it was shown that the largest proportion of respondent 122 (21.5%) were between ages 26 and 35years, while 86(21.5%), were between 36 and 45years. Also, more than half of the respondents 242(60.5%), were males, 158(39.5%) were females, 243(58.5%), were market 150(37.5%) were single, 9 (2.2%) were divorces while 7 (1.8%) were widows. It also indicated that most of respondents 184(46.0%) and 140(35.0%), have post secondary school education and secondary school education respectively, while, 24 (6.0%) of respondents have no form of formal education. About half of the subject 286(71.5%) were Christians and 112(28.0%) were Muslims, while only 2(0.5%) were traditional worshipers. Majority of respondents were employed.

Table 2: Prevalence of Psychiatric Morbidity

The prevalence of Psychiatric morbidity, among the respondents in this study was estimated by General Health Questionnaire score of 23 and above (GHQ-28). Out Type equation here.of the 400 respondents, 261(65.2%) had GHQ score above the median i.e.≥ 2.30, which indicated the prevalence of mental disorder in this study was 65.2%.

Table 2: Prevalence of Psychiatric Morbidity

Psychiatric Morbidity	Frequency	Percentage %
Yes	261	65.2
No	139	34.8
Total	400	100.0

Minimum GHQ Score = 0, Maximum GHQ Score = 83

Mean GHQ Score = 23.50, Medium GHQ Score = 23.0

The prevalence of psychiatric morbidity among the respondents in the study was estimated by General health Questionnaire score of 23 and above (GHQ-28 items).

Out of the 400 respondents, 261 (65.2%) had GHQ score above the median i.e. ≥ 23.0, which indicates that the prevalence of mental disorder in the study was 65.2%.

.

Table 3: Common Psychiatric Disorders

Table 3 above showed that half of the respondents 207 (51.8%) and 225(56.3%) had scores for post-traumatic stress disorders and anxiety respectively, majority 286 (71.5%) had scores for social dysfunction, while less than half 155 (38.8%) and 153 (38.2%) had scores for somatisation and severe depression. The overlap in the proportions of the disorders can be explained by the possibility of co-morbidity of psychiatric disorders in an individual.

Table 3: Common Psychiatric Disorders

N = 400

Psychiatric Morbidity	Frequency	Percentage %
1. PTSD	207	51.8
2. Anxiety	225	56.3
3. Somatiziation	155	38.8
4. Social Dsyfunction	286	71.5
5. Severe Depression	153	38.2

Half of the respondents 207 (51.8 %) and 225 (56.3 %) had scores for post-traumatic stress disorders and anxiety respectively 286 (71.5%) had scores for social dysfunction, while less than half 155 (38.8%) had scores for somatization and severe depression. The overlaps in the proportions of the disorder can be explained by the possibility of co-morbidity of psychiatric disorders in an individual.

Table 4: Association Between Socio-demography Variables and Psychiatric Morbidity Among Respondents.

Table 4: Association Between Socio-demographic variable and Psychiatric Morbidity Among Respondents

DEMOGRAPHIC VARIABLE	YES		NO			X²	P-value
	N=261	Percent 100 %	N=129	Percent 100 %	Total(%)		
1. Age (Year)							
15-25	47	62.7	28	37.3	75 (100)		
26-35	83	68.0	39	32.0	122 (100)	Fisher's	
36-45	55	64.0	31	36.0	86 (100)	4.932	
46-55	29	60.4	19	39.6	48 (100)		0.556
56-65	34	73.9	12	26.1	46 (100)		
66-75	13	59.1	9	40.9	22 (100)		
75 above	0	0%	1	100.0	1 (100)		
2. Sex							
Male	166	68.6	76	31.4	242 (100)		
Female	95	60.1	63	39.9	158 (100)	3.023	0.082
3. Marital Status							
Single	97	64.7	53	35.3	150 (100)	Fisher's	
Married	152	65.0	82	35.0	234 (100)	0.772	0.856
Widowed	5	71.4	2	28.6	7 (100)		
Divorced	7	77.8	2	22.2	9 (100)		
4. Educational Status							
No formal Education	17	70.8	7	29.2	24 (100)		
Primary Education	36	69.2	16	30..8	52 (100)		
Secondary Education	87	62.1	53	37.9	140 (100)	1.311	0.727
Post Secondary Education	121	65.8	63	34.2	184 (100)		
5. Religion							
Christian	182	63.6	104	36.4	286 (100)	Fisher's	
Islam	77	68.8	35	31.2	112 (100)	1.999	0.368
Traditional	2	100.0	0	0.0	2 (100)		
6. Employment Status							
Employed	161	64.9	87	35.1	248 (100)		
Unemployed	100	65.8	52	34.2	152 (100)	0.031	0.859

PSYCHIATRIC MORBIDITY N = 400

The table above shows the demographic characteristics of respondents with psychiatric morbidity. Proportion of respondents with psychiatric morbidity is higher among those between ages 56 and 65.

The table 4 above depicted the demographic of respondent with psychiatric morbidity. The incident of psychiatric morbidity is higher among those between ages 56 and 65 years than in other age groups. It was also very high among the divorced and widows, more among men than women, among people without formal education, more among Muslims and the unemployed.

Table 5: Association between Psychiatric Morbidity and Accident Variables

Table 5: Association Between Psychiatric Morbidity and Accident Variables

ACCIDENT VARIABLE	YES		NO		Total Frequency (%)	X²	P-value
	N=261	Percent 100 %	N=129	Percent 100 %			
1. Length time post accident							
One month	57	63.3	33	36.7	90 (100)		
Two months	35	62.5	21	37.5	56 (100)		
Three months	39	73.5	14	26.4	53 (100)		
Four months	9	32.1	19	67.9	28 (100)	20.780	0.001
Five months	21	56.8	16	43.2	37 (100)		
Six months and above	100	73.5	36	26.5	136 (100)		
2. Type of Vehicle							
Motor Vehicle	189	70.3	80	29.7	269 (100)	Fisher's	
Motor Cycle	65	54.6	54	45.4	119 (100)	10.557	
Tricycle	5	50.0	5	50.0	10 (100)		0.007
Bicycle	2	100.0	0	0.0	2 (100)		
3. Role/Status in accident							
Driver	27	60.0	18	40.0	45 (100)		
Passenger	133	63.6	76	36.4	209 (100)	Fisher's	
Pedestrian	101	69.7	44	30.3	145 (100)	3.826	0.249
Conductor	0	0.0	1	100.0	1 (100)		
4. Previous accident experience							
Yes	72	75.8	23	24.2	95 (100)	6.104	0.013
No	189	62.0	116	38.0	305 (100)		
5. Family/friend in the same accident							
Yes	44	54.3	37	45.7	81 (100)	5.350	0.021
No	217	68.0	102	32.0	319 (100)		
6. Incidence of death in the accident							
Yes	24	57.1	18	42.9	42 (100)		
No	237	66.2	121	33.8	358 (100)	1.360	0.243
7. Immediate reaction post-accident							
Afraid	62	54.9	51	45.1	113 (100)		
Helpless	117	71.8	46	28.2	163 (100)	14.518	0.002
Thought of death/disability	73	70.9	30	29.1	103 (100)		
None	9	42.9	12	57.3	21 (100)		
8. Perceived effect of accident on life							
Mild	25	46.3	29	53.7	54 (100)	Fisher's	
Moderate	75	54.7	62	45.3	137 (100)	27.978	
Severe	154	77.0	46	23.0	200 (100)		0.000
No effect	7	77.8	2	22.2	7 (100)		
9. Received adequate support							
Yes	230	65.2	123	34.8	353 (100)		
No	31	66.0	16	34.0	47 (100)	0.012	0.914

From the table above, it was indicated that psychiatric morbidity was more prevalent among those who had been on for three months and those who had been admitted for six months and above than others (73.6% and 73.5% respectively as against 63.3%, 62.5%, 32.1 and 56.8%). The proportion of psychiatric morbidity is higher among those who had motorcycle and tricycle accidents (70.3%, 100% respectively as against 54.6% and 50.0%). The table equally showed that, psychiatric morbidity is more prevalent among the pedestrian than among the drivers and passengers (69/7% as against 60.0% and 63.6% respectively). Also been helpless and having thought of death immediately after the accident as well as those who perceived the effect of accident on life as severe and have higher proportion among the respondent with psychiatric morbidity. However, Only the length of time post accident, types of vehicle, previous accident experience, involvement of family/ friends in the accident, immediate reaction post accident and perceived effect of accidents were statistically significant with psychiatric morbidity.

Table 6: Association between PTSD and Accident Variables

Table 6: Association Between PTSD and Accident Variables

ACCIDENT VARIABLE	PTSD N = 400				Total Frequency (%)	X²	P-value
	YES		NO				
	N=207	Percent 100 %	N=193	Percent 100 %			
1. Length time post accident							
One month	41	45.6	49	54.4	90 (100)		
Two months	30	53.6	26	46.4	56 (100)		
Three months	34	64.2	19	35.8	53 (100)		
Four months	13	46.4	15	53.6	28 (100)	5.174	0.395
Five months	20	54.1	17	45.9	37 (100)		
Six months and above	69	50.7	67	49.3	136 (100)		
2. Type of Vehicle							
Motor Vehicle	153	56.9	116	43.1	269 (100)	Fisher's 11.462	
Motor Cycle	49	41.2	70	58.8	119 (100)		
Tricycle	3	30.0	7	70.0	10 (100)		0.005
Bicycle	2	100.0	7	0.0	2 (100)		
3. Role/Status in accident							
Driver	23	51.1	22	48.9	45 (100)		
Passenger	106	50.7	103	49.3	209 (100)	Fisher's 1.359	
Pedestrian	78	53.8	67	46.2	145 (100)		0.814
Conductor	0	0.0	1	100.0	1 (100)		
4. Previous accident experience							
Yes	54	56.8	41	53.2	95 (100)		
No	153	50.2	152	49.8	305 (100)	1.294	0.255
5. Family/friend in the same accident							
Yes	40	49.4	41	43.2	81 (100)		
No	167	52.4	152	47.6	319 (100)	0.228	0.633
6. Incidence of death in the accident							
Yes	19	45.2	23	54.8	42 (100)		
No	188	52.5	170	47.5	358 (100)	0.797	0.372
7. Immediate reaction post-accident							
Afraid	42	37.2	71	62.8	113 (100)		
Helpless	96	58.9	67	41.1	163 (100)	14.362	0.002
Thought of death/disability	59	57.3	42.7	42.7	103 (100)		
None	10	47.6	52.4	52.4	21 (100)		
8. Perceived effect of accident on life							
Mild	21	38.9	33	61.1	54 (100)		
Moderate	59	43.1	78	56.9	137 (100)	Fisher's 29.307	
Severe	127	63.5	73	36.5	200 (100)		0.000
No effect	0	0.0	9	100.0	9 (100)		
9. Received adequate support							
Yes	181	51.3	172	48.7	353 (100)	0.272	0.602
No	26	55.3	21	44.7	47 (100)		

The above table 6, indicated the pen-accident variables of the respondents with post traumatic stress disorder. The largest proportions of the respondents with post-traumatic disorders were among those who had been on admission for three months, who had bicycle accidents and pedestrians. Also, post traumatic stress disorder is more among those who have had previous accident experience, among those who were helpless, and those who had thought of disability and death when the accident occurred, and among those who perceived the effect of the accidents as service on their life (64.2%, 54.1%, 53.6%, 50.7%, 46.4%, and 45.6% respectively). However, only types of vehicle, immediate reaction post accident and perceived effect of accident were statistically significant with post traumatic stress.

Table 7: Association Between Sanitization and Accident Variables

Table 7: Association Between Somatization and Accident Variables

ACCIDENT VARIABLE	SOMATIZATION N = 400						
	YES		NO		Total Frequency (%)	X^2	P-value
	N=155	Percent 100 %	N=245	Percent 100 %			
1. Length time post accident							
One month	35	38.9	55	61.1	90 (100)		
Two months	23	41.1	33	58.9	56 (100)		
Three months	28	52.8	25	47.2	53 (100)		
Four months	8	28.6	20	71.6	28 (100)	7.218	0.205
Five months	15	40.5	22	59.5	37 (100)		
Six months and above	46	33.8	90	66.2	136 (100)		
2. Type of Vehicle							
Motor Vehicle	107	39.8	162	60.2	269 (100)	Fisher's	
Motor Cycle	42	46.1	77	72.9	119 (100)	3.471	
Tricycle	4	40.0	6	60.0	10 (100)		0.299
Bicycle	2	100.0	0	0.0	2 (100)		
3. Role/Status in accident							
Driver	19	42.2	26	57.8	45 (100)		
Passenger	69	33.0	140	67.0	209 (100)	Fisher's	
Pedestrian	67	46.2	78	53.8	145 (100)	7.117	0.046
Conductor	0	0.0	1	100.0	1 (100)		
4. Previous accident experience							
Yes	35	36.8	60	58.2	95 (100)		0.662
No	120	39.3	185	60.7	305 (100)	0.191	
5. Family/friend in the same accident							
Yes	30	37.0	51	63.0	81 (100)	0.126	0.723
No	125	39.2	194	60.8	319 (100)		
6. Incidence of death in the accident							
Yes	20	47.6	22	52.4	42 (100)		
No	135	38.8	223	61.2	358 (100)	1.555	0.212
7. Immediate reaction post-accident							
Afraid	29	25.7	84	74.3	113 (100)		
Helpless	83	50.9	80	49.1	163 (100)	Fisher's	
Thought of death/disability						21.813	0.000
None	39	37.9	64	62.1	103 (100)		
	4	19.0	17	81.0	21 (100)		
8. Perceived effect of accident on life							
Mild	20	37.0	34	63.0	54 (100)		
Moderate	48	35.0	89	65.0	137 (100)	Fisher's	
Severe	82	41.0	118	59.0	200 (100)	2.405	0.496
No effect	5	55.6	4	44.4	9 (100)		
9. Received adequate support							
Yes	129	36.5	224	63.5	353 (100)	6.160	0.013
No	26	55.3	21	44.7	47 (100)		

Table 7 above showed the accident variables of the respondent with somatisation is more among those who had stayed three months in the hospital, among those with bicycle accident, among those who were helpless immediate post accident and among those who felt the accident experience has no effect on their life; however, only role status in the accident, immediate reaction post accident and receiving adequate support were statistically significant with somatisation disorder, other accident variables were not statistically significant.

Table 8: Association between Accident Variables and Anxiety

Table 8 above summarized the accident variables of the respondents with anxiety disorder. Anxiety is more among those who were admitted for one to three months and among those admitted for six months and above, but less common among those admitted for four and five months. Anxiety is also more among people who had motor vehicle and bicycle accidents than among those who had accident through other means of transportation. Proportion of respondents with anxiety is also more among those who were passengers and pedestrians, those who had previous accident experience, among those who reported incident of death, among those who were

helpless and those who had thought of death and disability when the accident occurred, also among those who perceived the effect of accident as severe and those who received adequate support from the significant others during the accident, however, only. The length of time post accident, type of vehicle, previous accident experience, involvement of family/friend in the accident, immediate reaction post accident and perceived effect of the accidents on life were statistically with anxiety disorder.

Table 8: Association Between Accident Variables and Anxiety

ACCIDENT VARIABLE	ANXIETY N = 400						
	YES		NO		Total Frequency (%)	X^2	P-value
	N=226	Percent 100 %	N=174	Percent 100 %			
1. Length time post accident							
One month	47	52.2	43	47.8	90 (100)		
Two months	34	60.7	22	39.3	56 (100)		
Three months	28	52.8	25	47.2	53 (100)		
Four months	10	35.7	18	64.3	28 (100)	11.639	0.040
Five months	18	48.6	19	51.4	37 (100)		
Six months and above	89	65.4	47	34.6	136 (100)		
2. Type of Vehicle							
Motor Vehicle	166	61.7	103	38.3	269 (100)		
Motor Cycle	53	44.5	66	55.5	119 (100)	Fisher's	
Tricycle	5	50.0	5	50.0	10 (100)	11.219	0.006
Bicycle	2	100.0	0	0.0	2 (100)		
3. Role/Status in accident							
Driver	20	44.4	25	55.6	45 (100)		
Passenger	124	59.3	85	40.7	209 (100)	Fisher's	
Pedestrian	82	56.6	63	43.4	145 (100)	4.549	0.163
Conductor	0	0.0	1	100.0	1 (100)		
4. Previous accident experience							
Yes	68	71.6	27	28.4	95 (100)		
No	158	51.8	147	48.2	305 (100)	11.526	0.001
5. Family/friend in the same accident							
Yes	38	46.9	43	53.1	81 (100)		
No	189	62.0	116	38.0	319 (100)	6.104	0.013
6. Incidence of death in the accident							
Yes	22	52.4	20	47.6	42 (100)	0.324	0.002
No	204	57.0	154	43.0	358 (100)		
7. Immediate reaction post-accident							
Afraid	50	44.2	63	55.8	113 (100)		
Helpless	103	63.2	60	36.8	163 (100)		
Thought of death and disability	65	63.1	38	36.9	103 (100)	14.594	0.002
None	8	38.1	13	61.9	21 (100)		
8. Perceived effect of accident on life							
Mild	21	38.9	33	61.1	54 (100)		
Moderate	64	46.7	73	53.3	137 (100)	Fisher's	
Severe	138	69.0	62	31.0	200 (100)	26.959	0.000
No effect	3	33.3	6	66.7	9 (100)		
9. Received adequate support							
Yes	197	55.8	156	44.2	353 (100)		
No	29	61.7	18	38.2	47 (100)	0.586	0.444

Table 9: Association between Accident Variables and Social Dysfunction.

The Table 9 above presented the accident variables of the 286 respondents with social dysfunction. Social dysfunction is highest among respondents who had been hospitalized for six months and above, among those who had bicycle and motor vehicle accidents. Social dysfunction is also more among the passengers and pedestrians, among those who had previous accident experience and those who had family members or friends involved in the same accident, also among those who reported incidence of death in the accident. Higher

proportion is also among those who had thought of death and disability, those who were helpless and those who were afraid when the accident occurred, among those who perceived the effect of accident as severe and those who received adequate support. Length of time post accident, type of vehicle, role/status in the accident, previous accident experience, involvement of other family members or friends in the accident, immediate reaction post accident and perceived effect of accident on life were statistically significant with social dysfunction among respondents.

Table 9: Association Between Accident Variables and Social Dysfunction

ACCIDENT VARIABLE	YES		NO		Total Frequency (%)	X²	P-value
	N=288	Percent 100 %	N=112	Percent 100 %			
1. Length time post accident							
One month	63	70.0	27	30.0	90 (100)		
Two months	35	62.5	21	37.5	56 (100)		
Three months	41	77.4	12	22.6	53 (100)		
Four months	17	60.7	11	39.3	28 (100)	13.418	0.020
Five months	22	59.5	15	40.5	37 (100)		
Six months and above	110	80.9	26	19.1	136 (100)		
2. Type of Vehicle							
Motor Vehicle	207	77.0	62	23.0	269 (100)		
Motor Cycle	74	62.2	45	37.8	119 (100)	Fisher's	
Tricycle	5	50.0	5	50.0	10 (100)	11.592	0.005
Bicycle	2	100.0	0	0.0	2 (100)		
3. Role/Status in accident							
Driver	26	57.8	19	42.2	45 (100)		
Passenger	155	74.2	54	25.8	209 (100)	Fisher's	
Pedestrian	107	73.8	38	26.2	145 (100)	7.318	0.045
Conductor	0	0.0	1	100.0	1 (100)		
4. Previous accident experience							
Yes	80	84.2	15	15.8	95 (100)		
No	208	68.2	97	31.8	305 (100)	9.214	0.002
5. Family/friend in the same accident							
Yes	45	55.6	36	44.4	81 (100)		
No	243	76.2	76	23.8	319 (100)	13.624	0.000
6. Incidence of death in the accident							
Yes	25	59.5	17	40.5	42 (100)		
No	263	73.5	95	26.5	258 (100)	3.62.	0.057
7. Immediate reaction post-accident							
Afraid	79	69.9	34	30.1	113 (100)		
Helpless	118	72.4	45	27.6	163 (100)		
Thought of death and disability	82	79.6	21	20.4	103 (100)	12.064	0.007
None	9	42.9	12	57.1	21 (100)		
8. Perceived effect of accident on life							
Mild	30	55.6	24	44.4	54 (100)		
Moderate	85	62.0	52	38.0	137 (100)	Fisher's	
Severe	167	83.5	33	16.5	200 (100)	27.828	0.000
No effect	6	66.7	3	33.3	9 (100)		
9. Received adequate support							
Yes	252	71.4	101	28.6	353 (100)		
No	36	76.6	11	23.4	47 (100)	0.558	0.455

SOCIAL DYSFUNCTION N = 400

Table 10: Association between Accidents Variables and Severe Depression

The Table 10 above showed the accident variables and the respondents with severe depression. Severe depression is more among those who had stayed in the hospital for between two to six months and above, more among those who had bicycle accidents, pedestrians, those who had previous accident experience, among those who had thought of death and disability immediately post accident, and those who perceived the effect of accident as severe was significantly related with severe depression.

Table 10: Association Between Accident Variables and Severe Depression

ACCIDENT VARIABLE	YES		NO		Total Frequency (%)	X^2	P-value
	N=207	Percent 100 %	N=193	Percent 100 %			
1. Length time post accident							
One month	24	26.7	66	73.3	90 (100)		
Two months	23	41.1	33	58.9	56 (100)		
Three months	22	41.5	31	58.9	53 (100)		
Four months	7	25.0	21	75.0	28 (100)	10.804	0.055
Five months	15	40.5	22	59.5	37 (100)		
Six months and above	62	45.6	74	54.4	136 (100)		
2. Type of Vehicle							
Motor Vehicle	104	38.7	165	61.3	269 (100)		
Motor Cycle	46	38.7	73	61.3	119 (100)	Fisher's	
Tricycle	2	20.0	8	80.0	10 (100)	1.699	0.649
Bicycle	1	50.0	1	50.0	2 (100)		
3. Role/Status in accident							
Driver	15	33.3	30	66.7	45 (100)		
Passenger	80	38.3	129	61.7	209 (100)	Fisher's	
Pedestrian	58	40.3	87	60.0	145 (100)	1.199	0.836
Conductor	0	0.0	1	100.0	1 (100)		
4. Previous accident experience							
Yes	43	45.3	52	65.4	95 (100)		
No	110	36.1	195	60.8	305 (100)	2.594	0.107
5. Family/friend in the same accident							
Yes	28	54.6	53	65.4	81 (100)		
No	125	39.2	194	60.8	319 (100)	0.583	0.445
6. Incidence of death in the accident							
Yes	13	31.0	29	69.0	42 (100)		
No	140	39.1	218	60.9	358 (100)	1.058	0.304
7. Immediate reaction post-accident							
Afraid	30	26.5	35	64.8	113 (100)		
Helpless	67	41.6	80	58.4	163 (100)		
Thought of death/disability	49	37.5	125	62.5	103 (100)	11.118	0.011
None	7	22.2	7	77.8	21 (100)		
8. Perceived effect of accident on life							
Mild	19	35.2	35	64.8	54 (100)		
Moderate	57	41.6	80	58.4	137 (100)	Fisher's	
Severe	75	37.5	125	62.5	200 (100)	1.747	0.626
No effect	2	22.2	7	77.8	9 (100)		
9. Received adequate support							
Yes	130	36.8	223	63.2	353 (100)	2.575	0.109
No	23	48.9	24	51.1	47 (100)		

IV. DISCUSSION OF FINDINGS

The overall prevalence of psychiatric morbidity as determined by GHQ-28 was 65.2%. There is pacecity of information on the prevalence of psychiatric morbidity among injured road traffic accident victims. The available studies on this subject are prevalence of individual disorders like post-traumatic. Stress disorders, acute stress disorders and depression in the studied population, this study equally showed high prevalence of psychiatric morbidity following road accident. The study was congruent with a study in Kenya where 13.3% of the parents experienced psychiatric morbidity following car. Accidents according to DSM-iv criteria [31]. This current findings equally corroborated the study carried out in Turkey in which the incidence of psychiatric morbidity following car crashes was estimate to be 30% [32]. Also in a study in Israel involving 74 car accident patients, 32.0% of them were reported to experience psychiatric morbidity according to DSM-classification system after one year33. Some western countries have also reported the prevalence of psychiatric morbidity in road accident trauma in the same range. For example, a study in Germany examined 179 patients with injury from car accidents after six months of follow up showed that 18.4% had psychiatric morbidity according to interviews based on DSM-IVTR [3]. This study has unfolded the fact that psychiatric morbidity was prevalent in many road accident patients, many of literature reviewed supported this finding 33, 34, 35, 36, 37 according to the finding of this study, the common psychiatric disorders was social dysfunction, 71%, followed by Anxiety, 56.3%, PTSD, 51.8% Somalization, 38.8% and severe depression 38.2% O' Donned ef al41 and a Japan study found prevalence of major depression determined by structured clinical interviews ranges from 10-19% at 0-3months after the accident and 10-14% at 4-12months after it. Mayou and Bryant [22] reported post-traumatic stress disorder, mood, and travel anxiety 3months, 1 and 3 years in a group of road accident survivors they studied [29], also Manuela Kuhn et al, found that shortly after the accident, the incidence of acute disorder (7%) subsyndromal acute stress disorders (12%) and adjustment disorders (1.5%), as a reaction to the accidents, 29% of all the patients suffered from an acute psychiatric disorder. Six month after the accident, 10% of the subjects

met criteria for major depression, 6% for PTSD, 4% for subsyndromal PTSD, and 1.5% for specific phobia as newly developed disorders[43]. Proportion of respondent with psychiatric morbidity in this study was higher among, people who were in age group 56 to 65 years than in other groups, among the divorced and widows, among men more than women. It was equally fund that psychiatric morbidity was higher among those who had no formal education than others with formal levels of education, among those who practice traditional religion and Islam than Christians and those who were unemployed[30,31].

V.   CONCLUSION

The results of this study suggested that psychiatric. Morbidity was a common occurrence following road traffic injury. Road accident injury associated with psychiatric morbidity can have devastating effects on patient quality of life and functional outcome of accident survivor. The findings are consistent with previous studies where men experience more traumatic events and exposure was associated with more severe psychiatric disorders among women. There was no significant relationship between demographic characteristic of injured patients with psychiatric morbidity but some accident variables did. The prevalence of psychiatric morbidity in this study was higher (62.5%) more than most existing studies. The common psychiatric disorders identified in this study were; post-traumatic stress disorder, anxiety, somatisation, social dysfunction and severe depression. For the purpose of this study, psychological morbidity was determined by the General Health Questionnaire – 28 (GHQ-28), with four subscales, namely, somatic symptoms, anxiety and insomnia, social dysfunction and depression, and post-traumatic stress scale (short items civilian version). The finding from this study point to the need for psychologist and nurses for promoting counselling services and necessary consultation-liaison psychiatric services in trauma care units.

Recommendation

Considering the findings of this study, it was recommended that: -
-   A multi-disciplinary approach in the management of road accident survivor at the orthopaedic and trauma centers to address physical and psychological needs of the accidents survivors adequately.
-   Awareness of all the psychiatric outcomes after motor vehicle accidents, introduction of the psychological interventions that will contribute to the management of road accident survivors is what every management of trauma and orthopaedic centers should ensure.
-   Broad-based interventions in road traffic accident prevention that includes regulation, legislation and community projects should be undertaken by the government of every nation.
-   The focus should be on issues like establishment of provincial, safety committee, motorcycle Helmet Campaign, Anti-Drunk-Driving Campaign and establishment of trauma registry and the pre hospital care system.

REFERENCES

[1].   WHO, World Report on Road Traffic Injury Prevention Summary. World Health Organization Geneva. Switzerland 2004
[2].   Nantulya VM, Reich Mr. The neglected epidemic Road traffic injuries in developing countries. Br. Med J 2002; 324: 1139-1141.
[3].   O'Neill B, Mohan D. Reducing motor vehicle crash deaths and injuries in newly motorizing countries, BMJ 2002; 324:1142-1145.
[4].   WHO Department of Injuries and Violence Prevention. The injury chart book a graphical overview of the global burden of injuries Geneva. World Health Organization 2002.
[5].   Bartlett SN. The problem of children's injuries in low-income countries: a review. Health Policy Plan 2002; 17:1-13.
[6].   Labinjo M, Juillard C, Kobusingy OC, Hyder AA. The burden of road traffic injuries in Nigeria results of a population-based survey. Inj Prev 2009:157-162.
[7].   Ameratunga S, Hijar M, Norton R. Road-traffic injuries confroontinig disparities to address a global-health problem. Lancet 2006; 367:1533-40
[8].   Nantulya VM, Reich MR. Equity dimensions of road traffic injuries in low-and middle-income countries. Inj Control Saf promot 2003;10-13-20.
[9].   WHO. Summary tables for mortality and disability adjusted life years for all member countries in 2002 Geneva. World Health Organization 2004.
[10].   WHO. Department of Measurement and Health Information. Statistical annex of the world health report 2004 Geneva. World Health Organization 2004.
[11].   Adesunkanmi AR, Oginni LM, Oyelami OA. Road traffic accidents to African children assessment of severity using the injury severity score (ISS). Injury 2007; 31:225-8.
[12].   World Health Organization. Prevalence severity and unmet need for treatment of mental disorders. JAMA 2004; 291:281-290.
[13].   El-Rufaie OE. Review – Primary care psychiatry: pertinent Arabian perspectives. East Mediterr Healt 2005; 11-449-458.
[14].   Fazel M, Wheeler J, Danesh J. Prevalence of serious mental disorders on 7000 refugees resettled in western countries a systematic review. Lancet 2005; 365:1309-14.
[15].   Ansseau M, Dierick M, Buntinkx F, et al. High prevalence of mental disorders in primary care. J Affect Disorder 2004; 78:49-55.
[16].   Avasthi A, Varma SC, Kulhara P. Diagnosis of common mental disorders by using PRIME-MD Patient Health Questionnaire. Indian J Med Res 2008; 127:159-64.
[17].   Abdulmalik J.O. Psychiatric practice in Nigeria, past, present and future. BMJ West Africa 2007; 10:250-252.
[18].   Ipingbemi O. Spartial Analysis and Socio-economic burden of Road Traffic Crashes in South-western Nigeria. International Journal of Injury control and safety promotion 2008;15:99-108.

[19].   Federal Road Safety Commission. Nigerian traffic accidents (January to October, 2009). FRSC Report 2009.
[20].   Gureje O, Revisiting the National Mental health Policy for Nigeria. Archives of Ibadan Medicine 2003; 5:2-4.
[21].   Meaghan L, O'Donnell, Mark C, Phillipa P, Christopher A. Psychiatric Morbidity Following Injury. Am J. Psychiatry 2004; 161:507-514.
[22].   Mayou R, Bryant B, Duthie R. Psychiatric consequences of road traffic accidents. Br. Med J 2003; 307: 647-651.
[23].   Harvey AG, Bryant RA. Acute stress disorder across trauma populations. J Nerv Ment Dis 2002; 187:443-446.
[24].   Kalueff AV, Nutt DJ. Role of GABA in anxiety and depression. Depress Anxiety 2006. Retrieved in Jan. 2012, from http://www.ncbi.nlm.gov/entrez/query.fcgi?
[25].   Bryant RA, Harvey AG. Relationship between acute stress disorder and posttraumatic stress disorder following mild traumatic brain injury. Am J Psychiatry 2003;155:625-629.
[26].   Ehlers A, Mayou RA, Bryant B. Psychological predictors of chronic posttraumatic stress disorder after motor vehicle accidents J. Abnorm psychol 2003; 107:508-519.
[27].   Schnyder U, Moergeli H, Klaghofer R, Buddeberg C. Incidence and prediction of posttraumatic stress disorder symptoms in severely injured accident victims. Am J Psychiatry 2002; 158 594-599.
[28].   Mayou R, Bryant B. Outcome in consecutive emergency department attenders following a road traffic accident. Br. J. Psychiatry 2002; 179:528-534.
[29].   Iteke O, Bakare MO, Agomoh AO, Uwakwe R, Onwukwe JU. Road traffic accidents and posttraumatic stress disorder in an orthopedic setting in south-eastern Nigeria a controlled study. Scand J Trauma Resuse Emerg Med Epub 2011; 19:39.
[30].   Ozaltin M, Kaptanoglu C, Aksaray G. Acute stress disorder and posttraumatic stress disorder after motor vehicle accidents. Turk Psikiyatri Derg 2004; 15: 16-25.
[31].   Rabe S, Dorfel D, Zollner T, Maercker A, Karl A. Cardiovascular correlates of motor vehicle accident related posttraumatic stress disorder and its successful treatment. Appl Psychophysiol Biofeedback 2006; 31: 315-30.
[32].   Wang CH, Tsay SL, Bond AE. Post-traumatic stress disorder, depression, anxiety and quality of life in patients with traffic-related injuries. J. Adv Nurs 2005; 52-22-30.
[33].   Glynn SM, Asarnow JR, Asarnow R, Shetty V, Elliot-Brown K, Black E, et al. the development of acute post-traumatic stress disorder after orofacial injury: a perspective study in a large urban hospital. J Oral Maxillofac Surg 2003; 61:785-92.
[34].   Starr AJ, Smith WR, Frawley WH, Borer DS, Morgan SJ, Reinert CM, et al. Symptoms of posttraumatic stress disorder after orthopaedic trauma. J Bone Joint Surg AM 2004; 86: 111521.
[35].   Lasebikan V O, Coker O A, Prevalence of Mental Disorders and Profile of Disablement among Primary Health Care Service Users in Lagos Island. Epidemiology Research International 2012: 357348.
[36].   Amoran OE, Lawoyin TO, and Oni OO, Risk Factors Associated with Mental Illness in Oyo State, Nigeria; A Community Based Study. Annals of General Psychiatry 2005. Retrieved Oct. 23, 2012, from Biomed Central data base, http://www.annals-general-psychiatry.com/content/4/1/19.
[37].   O'Donnell ML, Creamer M, Elliot P, Atkin C, Kossmann T, Sheridan RL, Richmond TS: Determinants of quality of life and role-related disability after injury: Impact of acute psychological responses. J Trauma 2005: 1328-1335.
[38].   O' Donnell ML, Bryant RA, Creamer M, Havelaar A, Bonsel G, Van Beeck EF. Beyond the neglect of psychological consequences. Inj. Prev. 2011; 17.1:21-26.