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Prevalence and Determinants of Depression Among Traumatic Spinal Cord Injured Patients Attending Ibn-Al-Quff Hospital, Baghdad, Iraq

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Abstract

Background Depression is a common consequence of spinal cord injury.

Objective To identify the prevalence and potential risk factors of depression among spinal cord injured inpatients, and assessment of the severity of depression.

Methods A cross-sectional study conducted at Ibn Al Quff Hospital for spinal cord injury rehabilitation. All inpatients with traumatic spinal cord injury were recruited excluding severely injured and those injured due to congenital and medical causes. Socio-demographic variables, spinal cord injury characteristics and comorbidity were compiled. Self-Reporting Questioner (SRQ-20) was used to identify mental symptoms. DSM-IV criteria for depression and Hamilton-17 Scale, for assessment of severity of depression were used.

Results A total of 274 spinal cord injured inpatients were approached; 93% responded; Paraplegics 75.7% and tetraplegics 24.3%. Violence was the major cause of injury. Seventy four percent (74.1%) had depression; 44% of them had severe and very severe depression. Depression was significantly associated with age (P=0.001), gender (P=0.001), education level (P=0.038), occupation (P=0.003); smoking habit (P=0.035), duration of injury (P=0.003), times of admission (P=0.000), and comorbidity (P=0.018).

Conclusion prevalence of depression is high and frequent among spinal cord injured inpatients. Demographic and spinal cord injury variables are significantly associated with depression and are the most important determinants of depression.

Keywords Depression, spinal cord, violence, prevalence, Iraq.

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List of abbreviations: DSM-IV = Diagnostic and Statistical Manual of Mental Disorders-IV, HAM-D = Hamilton scale for severity of depression, MDD = Major depressive disorder, SCI: Spinal cord injury, SRQ = Self-reporting questionnaires, WHO = World health organization.

Introduction

Spinal cord injury (SCI) is a devastating condition causing profound life changes for millions of people around the world [(1)]. Over 80% of traumatic SCI are male, with an average age at injury s of about 40 years and most frequent causes of injuries include motor vehicle accidents, violence, falls, and recreational accidents [(2)]. SCI typically causes paralysis and permanent disability. Despite costly and aggressive rehabilitative options, injuries to the spinal cord remain permanent and create lifelong challenges for survivors [(1)].

SCI results in diminished mobility, greatly reduced functional independence, and difficulties with socialization and employment [3]. Exposure to life-threatening conditions or severe mental stress may lead to various psychological reactions including depression. One of the deleterious stresses is that experienced during war. Veterans encumbered with physical disabilities are more prone to depression, among other psychological disorders [4]. During the Iraq-Iran war, many young soldiers and para-military troops sustained physical disabilities which were compounded by psychological conflicts [5]. The impact of SCI on psychological status has been variously debated. Several studies have suggested that SCI is associated with raised risks of psychological problems. Negative psychological states have been found in 30-40% percent of patients with SCI [6-8]. The Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV) [9] defines many disorders including major depressive disorder (MDD) on the basis of the presence of a minimum number of symptoms or features from a list [10,11]. Depression is the most common psychological issue associated with SCI [4], reportedly affecting approximately 30% of patients, and is generally characterized by depressed mood and diminished pleasure over a two-week span accompanied by issues including energy loss, concentration difficulties, and sleep or appetite disturbances [9]. There is a large body of literature documenting the high prevalence of depression, psychological distress, and psychological morbidity after spinal cord injury (SCI) [12-14]. In a recent study of community-residing people with traumatic SCI, the rate of probable major depression was found to be 3 times that of the general population [12,15].

In Iraq, Ibn Al-Quff hospital for spinal cord injuries was opened on October 1982 after increased incidence of spinal cord injuries at beginning of Iraq-Iran war [16,17]. More than four thousand spinal cord injured (SCI) patients had been rehabilitated in Iraq during the last three decades at Ibn Al-Quff hospital spinal cord injury rehabilitation [18]. About 84.8% of spinal cord injured persons were paraplegic, and about 15.2% were quadriplegic persons, 90.5% male and 9.5% were female. The causes of SCIs, are approximately 50% for high velocity missiles, 18% road traffic accidents, 16% fall from height, 6% stab wound, and 10% for others. A total of 1768 spinal cord injured persons were admitted to the Ibn Al-Quff hospital during 2003-2010 [19].

This study aimed to through a light on the prevalence of depression among physically disabled traumatic spinal cord injured patients at Ibn Al Quff spinal cord injuries hospital, Baghdad, Iraq, and assessment of the severity of depression.

Methods

Design and setting

This is a cross-sectional study with analytic component. It was conducted in Ibn Al Quff hospital for spinal cord injuries, Baghdad, Iraq. The data collection was done during the period from June 1st, 2011 to November 1st, 2012.

Study population and sampling

All inpatients with traumatic spinal cord injury, both genders were included.

Inclusion criteria: All traumatic spinal cord injured patients with paraplegia or quadriplegia, aged ≥18 years, of both sexes, and accepted to participate and have the interview.

Exclusion criteria: Severe injured patients, who cannot respond to questions, age <18 years, with paraplegia or quadriplegia by other non-traumatic causes like medical disorder or congenital disorders, and those with substance abuse.

Data collection tools: Basic socio-demographic variables, spinal cord injury history and history of co morbid characteristic and complications were compiled using a questionnaire filled through a direct interview. Mental status of the traumatic spinal cord injured inpatient was assessed using Self-Reporting Questionnaires Scale (SRQ-20) that was developed by the WHO

and used in many countries. According to previous studies conducted in Iraq, the cut-off point identified used to categories "potential psychiatric cases" and more generally persons with significant psychological distress was seven [20]. Those with positive SRQ-20 results were assessed for the presence of depression using the DSM-IV criteria [9]. Those with "depression" were further assessed for the severity of depression using the Hamilton scale. It contains 17 items to be rated (HAM-17) [21].

Definition of variables: The independent variables evaluated to explain depression were socio-demographics (age, gender, marital status, level of education, occupation, smoking habits, characteristics of the disability (types, causes, duration, admission times, and rehabilitation), complications and bed sores, and comorbid condition.

Statistical analysis

SPSS version 17 used for data entry and analysis. The prevalence of depression and its 95% confidence interval was calculated. Univariate analysis using Chi square was applied to identify potential risk factors of depression.

Ethical Issues

Informed consent was obtained from the patients after clarifying the objectives of the study. Names were kept anonymous and interviews were conducted with full privacy.

Results

A total of 274 spinal cord injured inpatients were approached; 255 welcomed and accepted to participate (response rate: 93%). Paraplegics were 193 (75.7%) and quadriplegics were 62 (24.3%). Distribution by sociodemographic and spinal cord injury characteristics and co-morbid conditions are shown in tables 1 and 2.

The prevalence of depression was 74.1%. About 44.7% of the sample has severe and very severe depression. None were receiving treatment; psychotherapy or medications. A cross classification of patients with and without depression by socio-demographic and spinal cord injury patients' characteristics and co-morbid conditions is shown in table 3 and 4.

The degree of severity of depression was explored according to socio-demographic characteristics and other co morbid features associated with spinal cord injury shown in table 5 and 6.

The prevalence of depression was highest among those aged (46-55) years (91.66%) and lowest among those aged 26-35 years (52.17%) (P=0.001). Females had significantly higher proportion of depression (94.12%) compared to males (69.12%) (P=0.001). Depression was significantly higher among illiterate (90%) than other educated patients (P=0.038). Unemployed (85.7%) and housekeepers (92.2%) patients had significantly higher prevalence of depression than employed patients (66.6%) (P=0.003). Depression was significantly higher among smokers (83.3%) than non- smokers (P=0.035).

The prevalence of depression was not significantly different by marital status (P=0.258), types of disability (P=0.727), and causes of spinal cord injury (P=0.086). The prevalence of depression was highest among those with injury of spinal cord for 1-5years duration (90.6%) (P=0.003), those with frequent admissions to the hospital (89.3%) (P=0.001), those who have other comorbid illnesses (P=0.018), and among those exposed to life events (P=0.008).

The prevalence of depression was not significantly affected by family history of mental illness (P=0.116), duration of admission (P=0.744), accompanied persons (P=0.688), visitors (P=0.646), rehabilitation (P=0.434), walking aids (P=0.935), complications (P=0.253), and presence of bed sores (P=0.324).

The assessment of depressed spinal cord injured patients by severity of depression revealed that 25.9% had mild depression, 11.8% had moderate depression and 44.7% had severe or very severe depression (table 5 and 6). The severity of depression was significantly associated with socio-demographic characteristics; age of the patients (P=0.000), gender (P=0.000), marital status (P=.029),

education level (P=0.000), occupation (P=0.000), and smoking habit (P=0.000).
The severity of depression was significantly associated with the causes of spinal cord injury (P=0.010), duration of injury (P=0.011), times of admission (P=0.000), complications (P=0.001), and co-morbidity (P=0.015).

Table 1. Distribution of the study group by sociodemographic characteristics and smoking habit

Socio demographic characteristic		Spinal Cord Injury		Total (255)	
		Paraplegia	Tetraplegia	No.	(%)
Age Group	18-25 yrs	70	23	93	36.5
	26-35 yrs	51	18	69	27.1
	36-45 yrs	33	9	42	16.5
	46-55 yrs	28	8	36	14.1
	56-65 yrs	11	4	15	5.9
Sex	Male	161	43	204	80
	Female	32	19	51	20
Marital Status	Single	90	36	126	49.4
	Married	98	25	123	48.2
	Divorced	5	1	6	2.4
Education Level	Illiterate	19	11	30	11.8
	Primary	92	31	123	48.2
	Intermediate	50	13	63	24.7
	Secondary	18	6	24	9.4
	institute and college	14	1	15	5.9
Occupation	Unemployed	20	1	21	8.2
	Employed	16	2	18	7.1
	free work	85	35	120	47.1
	house wife	23	16	39	15.3
	Military	23	4	27	10.6
	Retired	3	0	3	1.2
	Student	23	4	27	10.6
Smoking	No	137	46	183	71.8
	Yes	56	16	72	28.2

Table 2. Distribution of the study group by spinal cord injury characteristics and co-morbid conditions

		Spinal Cord Injury		Total (255)	
		Paraplegia	Quadriplegia	No.	(%)
Cause of injuries	Bullet	28	12	40	15.7
	Shell Explosion	48	41	89	34.9
	FFH	45	5	50	19.6
	RTA	72	4	76	29.8
Duration of Injury	Less than 1 year	104	27	131	51.4
	1-5 years	46	7	53	20.8
	More than 5 years	43	28	71	27.8
Duration of Admission	Less than 1 month	14	7	21	8.2
	1-6 months	148	47	195	76.5
	More than 6 months	31	8	39	15.3
Times of Admission	First Admission	133	38	171	67.1
	Frequent Admissions	60	24	84	32.9
Accompanied Persons	Absent	33	18	51	20
	Present	160	44	204	80
Visitors	Absent	20	7	27	10.6
	Present	173	55	228	89.4
Rehabilitation	Absent	26	4	30	11.8
	Present	167	58	225	88.2
Walking Aids	Absent	42	13	55	21.6
	Present	151	49	200	78.4
Complications	Absent	81	27	108	42.4
	Present	112	35	147	57.6
Co-morbidity	Absent	185	55	240	94.1
	Present	8	7	15	5.9
Pressure sore	Absent	131	30	161	63.1
	Present	62	32	94	36.9

Table 3. Distribution of the study group by depression and the socio-demographic characteristics

		Depression				Total (255)		P value
		Not Depressed		Depressed				
		No.	(%)	No.	(%)	No	(%)	
Age Group	18-25 yrs	21	22.6	72	77.4	93	36.47	0.001
	26-35 yrs	33	47.83	36	52.17	69	27.05	
	36-45 yrs	6	14.29	36	85.71	42	16.47	
	46-55 yrs	3	8.34	33	91.66	36	14.11	
	56-65 yrs	3	20	12	80	15	5.88	
Sex	Male	63	30.88	141	69.12	204	80	0.001
	Female	3	5.88	48	94.12	51	20	
Marital Status	Single	36	28.57	90	71.43	126	49.41	0.258
	Married	30	24.39	93	75.61	123	48.23	
	Divorced	0	0	6	100	6	2.35	
Education Level	Illiterate	3	10	27	90	30	11.76	0.038
	Primary	42	34.14	81	65.86	123	48.23	
	Intermediate	12	19.05	51	80.95	63	24.7	
	Secondary	6	25	18	75	24	9.41	
	College+	3	20	12	80	15	5.88	
Occupation	Unemployed	3	14.28	18	85.72	21	8.23	0.003
	Employed	6	33.33	12	66.67	18	7.05	
	free work	30	25	90	75	120	47.05	
	house keeper	3	7.69	36	92.2	39	15.29	
	Military	12	44.44	15	55.56	27	10.58	
	Retired	0	0	3	100	3	1.17	
	Student	12	44.44	15	55.56	27	10.58	
Smoking	No	54	29.5	129	70.5	183	71.76	0.035
	Yes	12	16.67	60	83.33	72	28.23	
Total		66	25.88	189	74.12	255	100%	

Table 4. Distribution of the study group by depression and spinal cord injury characteristics and presence of complication or comorbid condition

		Depression				Total (255)		P value
		Not Depressed		Depressed				
		N0.	%	No.	%	No.	%	
Disability	Paraplegia	51	26.4	142	73.6	193	75.7	0.727
	Quadriplegia	15	24.2	47	75.8	62	24.3	
Cause of injuries	Bullet	4	10	36	90	40	15.7	0.086
	Shell Explosion	25	28.1	64	71.9	89	34.9	
	FFH	16	32	34	68	50	19.6	
	RTA	21	27.6	55	72.4	76	29.8	
Duration of injury	Up to 1 year	44	33.6	87	66.4	131	51.37	0.003
	1-5 years	5	9.4	48	90.6	53	20.8	
	More than 5 years	17	23.9	54	76.1	71	27.8	
Duration of admission	Less than 1 month	5	23.8	16	76.2	21	8.2	0.744
	1-6 Months	49	25.1	146	74.9	195	76.5	
	More than 6 months	12	30.8	27	69.2	39	15.3	
Times of Admission	First Admission	57	33.3	114	66.7	171	67.1	0.000
	Frequent Admissions	9	10.7	75	89.3	84	32.9	
Accompanied persons	No	12	23.5	39	76.5	51	20	0.688
	Yes	54	26.5	150	73.5	204	80	
Visitors	No	6	22.2	21	77.8	27	10.6	0,646
	Yes	60	26.3	168	73.7	228	89.4	
Rehabilitation	No	6	20	24	80	30	11.7	0.434
	Yes	60	26.7	165	73.3	225	88.2	
walking aids	No	14	25.5	41	74.5	55	21.6	0.935
	Yes	52	26	148	74	200	78.4	
Complication	No	24	22.2	84	77.8	108	42.4	0.253
	Yes	42	28.6	105	71.4	147	57.6	
Bedsores	No	45	28	116	72.	161	63.1	0.324
	Yes	21	22.3	73	77.7	94	36.9	
Co morbidity	No	66	27.5	174	72.5	240	94.1	0.018
	Yes	0	0	15	100	15	5.9	
Total		66	25.88	189	74.12	255	100	

Table 5. Distribution of the study group by degree of severity of depression and the socio-demographic characteristics

		Depression										Total (255)		P value
		No Depression		Mild Depression		Moderate Depression		Severe Depression		Very Severe Depression				
		No	%	No	%	No	%	No	%	No	%	No.	(%)	
Age Group	18-25 yrs	21	22.5	3	3.2	21	22.5	18	19.3	30	32.2	93	36.5	0.000
	26-35 yrs	33	47.8	6	8.7	9	13.05	9	13.05	12	17.4	69	27.1	
	36-45 yrs	6	14.3	9	21.43	6	14.3	6	14.3	15	35.7	42	16.5	
	46-55 yrs	3	8.3	6	16.7	9	25	3	8.3	15	41.7	36	14.1	
	56-65 yrs	3	20	6	40	0	0	0	0	6	40	15	5.9	
Sex	Male	63	30.9	27	13.2	42	20.6	24	11.8	48	23.5	204	80	0.000
	Female	3	5.9	3	5.9	3	5.9	12	23.5	30	58.8	51	20	
Marital Status	Single	36	28.6	9	7.1	27	21.4	18	14.3	36	28.6	126	49.4	0.029
	Married	30	24.4	18	14.6	18	14.6	18	14.6	39	31.7	123	48.2	
	Divorced	0	0	3	50	0	0	0	0	3	50	6	2.4	
Education Level	Illiterate	3	10	3	10	3	10	3	10	18	60	30	11.8	0.000
	Primary	42	34.1	12	9.8	30	24.4	15	12.2	24	19.5	123	48.2	
	Intermediate	12	19.05	9	14.3	12	19.05	9	14.3	21	33.3	63	24.7	
	Secondary	6	25	6	25	0	0	6	25	6	25	24	9.4	
	College+	3	20	0	0	0	0	3	20	9	60	15	5.9	
Occupation	Unemployed	3	14.3	0	0	0	0	6	28.6	12	57.14	21	8.2	0.000
	Employed	6	33.3	3	16.7	0	0	0	0	9	50	18	7.1	
	Free work	30	25	15	12.5	36	30	15	12.5	24	20	120	47.1	
	house keeper	3	7.7	3	7.7	3	7.7	9	23.1	21	53.9	39	15.3	
	Military	12	44.4	3	11.1	6	22.2	3	11.1	3	11.1	27	10.6	
	Retired	0	0	3	100	0	0	0	0	0	0	3	1.2	
	Student	12	44.4	3	11.1	0	0	3	11.1	9	33.3	27	10.6	
Smoking	Not smoker	54	29.5	24	13.1	15	8.2	24	13.1	66	36.1	183	71.8	0.000
	Smoker	12	16.7	6	8.3	30	41.6	12	16.7	12	16.7	72	28.2	
Total		66		30		45		36		78		255	100	

Table 6. Distribution of the study group by degree of severity of depression and spinal cord injury characteristics and presence of complication or comorbid condition

		Depression												P value
		No Depression		Mild Depression		Moderate Depression		Severe Depression		Very Severe Depression		Total (255)		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Cause of injuries	Bullet	4	10	1	2.5	6	15	13	32.5	16	40	40	15.7	0.010
	Shell Explosion	25	28.1	15	16.9	14	15.74	8	8.99	27	30.3	89	34.9	
	FFH	16	32	5	10	10	20	3	6	16	32	50	19.6	
	RTA	21	27.6	9	11.85	15	19.7	12	15.79	19	25	76	29.8	
Duration of injury	Less than 1 year	44	33.6	15	11.5	21	16.03	21	16.03	30	22.9	131	51.4	0.011
	1-5 years	5	9.4	6	11.32	9	17	6	11.32	27	50.9	53	20.8	
	More than 5 years	17	23.95	9	12.7	15	21.1	9	12.7	21	29.6	71	27.8	
Duration of Admission	Less than 1 month	5	23.8	5	23.8	7	33.3	0	0	4	19.05	21	8.2	0.089
	1-6 months	49	25.1	22	11.3	32	16.4	33	16.9	59	30.3	195	76.5	
	More than 6 months	12	30.8	3	7.7	6	15.4	3	7.7	15	38.5	39	15.3	
Times of Admission	First Admission	57	33.3	24	14.04	24	14.0	24	14.04	42	24.6	171	67.1	0.000
	Frequent Admissions	9	10.7	6	7.14	21	25	12	14.3	36	42.9	84	32.9	
Accompa-nied persons	Absent	12	23.6	6	11.8	12	23.5	3	5.9	18	35.3	51	20	0.297
	Present	54	26.5	24	11.8	33	16.2	33	16.2	60	29.4	204	80	
Visitors	Absent	6	22.2	3	11.1	3	11.1	6	22.2	9	33.3	27	10.6	0.667
	Present	60	26.3	27	11.8	42	18.4	30	13.2	69	30.3	228	89.4	
Rehabilit-ation	Absent	6	20	0	0	9	30	6	20	9	30	30	11.8	0.083
	Present	60	26.7	30	13.3	36	16	30	13.3	69	30.7	225	88.2	
Walking aids	Absent	14	25.5	7	12.7	15	27.3	6	10.9	13	23.6	55	21.6	0.252
	Present	52	26	23	11.5	30	15	30	15	65	32.5	200	78.4	
Complicat-ion	Absent	24	22.2	18	16.7	24	22.2	21	19.4	21	19.4	108	42.4	0.001
	Present	42	28.6	12	8.2	21	14.3	15	10.2	57	38.8	147	57.6	
Co-morbidity	Absent	66	27.5	27	11.3	39	16.3	36	15	72	30	240	94.1	0.015
	Present	0	0	3	20	6	40	0	0	6	40	15	5.9	
Bedsores	Absent	45	28	23	14.3	23	14.3	20	12.4	50	31.1	161	63.1	0.147
	Present	21	22.3	7	7.45	22	23.4	16	17.02	28	29.8	94	36.9	
Total		66	25.9	30	11.8	45	17.65	36	14.1	78	30.6	255	100	

Discussion

The prevalence of depression was 74.1%, which is higher than many studies done across cultures. There was a strong correlation between degree of severity of depression and socio-demographic characteristics of the SCI inpatients. American meta-analysis (2014) of 19 studies found the mean prevalence estimate of depression diagnosis after SCI was 22.2% [22]. In a number of studies, it has been reported that depression scores vary between 20-40% in SCI patients [23,24]. Scivoletto et al in (1997) in Italian sample averaging 6 years post-SCI, found 16% reported significant symptoms of depression [25]. Migliorini et al. (2008) employed an Australian sample who averaged 19 years post-SCI, 37% were identified as depressed [26]. Dryden et al. (2004) study of 233 Albertans with SCI; 28.9% were treated for depression following their traumatic SCIs [27]. Bombardier et al. (2004) in a review found rates of major depression following SCI to vary widely across studies and can range from 7% to 31% of studied population [28]. Krause et al. (2008) surveyed 568 adult traumatic SCI inpatient rehabilitation clients; approximately 22% met self-reported symptoms consistent with major depressive disorder [29]. Bombardier et al. (2004) surveyed 849 SCI outpatients at one-year post injury and found 11.4% met criteria for MDD [27]. Krause et al. (2000) suggest a 42% overall rate of depression with a 21% probable rate of major depression [30].

Prevalence of depression of this study (74.1%) was lower than result of study done in Bangladesh (2007) on 167 spinal cord injured patients that found rate of depression to be around 80.24% [31]. Iranian study (2004) showed that the prevalence of depression in physically disabled veterans was (71%) [5], while recent Iranian study (2015) found 91 of 226 (40.2%) had moderate to severe depression [32]. Estimates of the prevalence of depression are affected by the nature of the measures used, how depression is defined, aging characteristics of the samples studied, and when symptoms are assessed post-injury.

Current study found that depression and severity of depression among spinal cord injured patients significantly associated with duration of disability; 66.4%, 90.6%, 76.1% for duration; 1 year, 1-5 years, <5 years respectively, while Richardson & Richards (2008), in a cross sectional study, found that rates of clinically significant depressive symptoms were reported by approximately 21%, 18%, 12% and 12% of SCI survivors surveyed at 1, 5, 15 and 25 years post injury, suggesting rates tended to decrease with time since injury [33]. Hoffman et al. (2008) followed 411 SCI model system participants and found approximately 20% of at 1-year post injury and 18% at year 5 post-injury reported symptoms consistent with major depression [34]. Pollard & Kennedy (2007) in a longitudinal analysis, found a substantial relationship between reported depressive symptoms at 3 months and approximately a decade post injury, with 38% and 35% of SCI survivors surveyed meeting a criterion for moderate depression at these times [35]. Kennedy & Rogers (2000) reported that anxiety, depression and hopelessness gradually increased beginning at week 30 post injury and continued until discharge from rehabilitation (week 48). At that point 60% of SCI clients scored above a clinical cut-off for depression (i.e. Beck Depression Inventory) [36]. This study showed significant gender association with depression and severity of depression, while Kalpakjian & Albright (2006) founded an absence of gender differences in probable major depression and symptom severity [37]. Turkish study (2014) found that depression was more frequent in females [6].

Current study found no statistical significance between depression and patient receiving rehabilitation or not. Krause et al. (2008) suggested that depressive symptoms may not peak during inpatient rehabilitation and it may take additional time for the "low point of emotional adaptation to appear" [38].

In this study, no any patient received treatment; dedication or psychotherapy. In a review of American veterans with spinal cord

injuries and disabilities, Smith et al. (2007) concluded that many may not be receiving adequate treatment for depression and the authors encouraged more aggressive screening and treatment [39]. Similarly, while a substantial percentage of their SCI clinic sample reported symptoms suggestive of major depression, Kemp & Krause (1999) found that none were receiving treatment (psychotherapy or medications) [40].

About 50% of causes of Spinal cord injury were bullets and shell explosions due to the security status and violence of Iraq and ongoing explosions and terrors events were major etiological factors associated with disability. Finding consistent with Sabah (2012) [18]. Violence is the commonest cause of Traumatic Spinal Cord Injuries in Iraq, which affect mainly the males at their most productive age.

The severity of depression of this study was the following; 25.9% mild depression, 11.8% moderate depression and 44.7% severe or very severe depression. Pakistanian study (2014) indicate the level of depression in people with physical disability, found that out of 35 individuals; 2.86% had mild mood disturbance, 2.86% had borderline clinical depression, 42.86% were moderately depressed, and 37.14% severely depressed and 14.29% were in extreme depression [41]. Robinson-Whelen et al. (2014) found that 41% of the women with spinal cord injury had depressive symptomatology in the mild to severe range. Nearly a third of the women had very sever depressive symptomatology [12].

In conclusions the prevalence of depression among SCI inpatients was 74.1%. About 45% of them were severely depressed. Severity of depression was significantly associated with sociodemographic characteristics, duration of disability, causes of injury, complications, and comorbidity. None of the depressed SCI patients received psychotherapy or medication. Violence was the commonest cause of Traumatic Spinal Cord Injuries. The results were compared with other studies from different cultures; prevalence of depressed spinal cord injured patients was higher than many studies and less than few.

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Authors Contribution:

Dr. Al Abbudi; consultant psychiatrist, data collection, data entry, data analysis, and writer of this paper. Dr. Ezzat, Social worker; data collection. Zebala, Psychologist, data collection. Hamdy, Psychologist, data collection. Al-Beedany, data collection and data entry. Farhan, Psychologist, data collection.

Conflict of interest

The authors declare no conflict of interest.

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