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Methods: A cross-sectional study carried at three prisons in Baghdad. All prisoners, both gender were included, using stratified random sampling technique. Socio-demographic variables were collected using an information list filled during the interview. Prisoners' mental state was checked by self-reporting questionnaires scale (SRQ-20). Positive SRQ-20 test prisoners were selected for administration of the DSM-IV Structured Interview by a consultant psychiatrist.

Results: Participation rate was 70%; mean age 33.9±7.17 years, bout 50% of prisoners stay in prison between 5-10 years. The prevalence of psychiatric morbidity was 749 (73.9%); obsessive compulsive disorder 1.5%, posttraumatic stress disorder 1.6%, schizophrenia 3.2%, panic disorder 4.8%, generalized anxiety disorder 7.2%, psychosis 9.2%, personality disorder 10.5%, depression 11.9%, and substance abuse 50.1%.

Conclusion: The study shows high psychiatric morbidity among Iraqi prisoners that need further attention.

Keywords: *iraq; prisoner; psychiatric morbidity; SRQ-20.*

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Pattern of Psychiatric Morbidity and Substance Abuse among Iraqi Prisoners

Shalan Joodah Rhemah Al-Abbudi [α] & Mushtaq Talib Hashim [σ]

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I. Introduction

Mental health of prisoners is a major issue of public health[1]. Studies show that mental illnesses are high prevalence among the prisoners than the general population[2]. There are a number of important factors which could be help to explain the high rates of mental illnesses among prisoners[3]. The environment of prison and rules regulate daily life inside prison can affect the prisoners mental health[4]. Imprisonment is a significant stressful event in an individual's life[2]. Imprisonment being a form punishment produces significant changes in one's physical, psychological, and social functioning[5]. In the prison, however, basic human values are distorted, contributing to temporary or even irreversible psychological sequelae[6]. In order to survive in the prison, the inmates have to undergo extremely harsh policies and rough conditions of imprisonment. They have to adapt to these frustrations and depravations of life[7]. Prisoners have to reside for years in prison and sometimes for lifelong. It is a big issue facing the mental health workers why mental illness of prisoners deteriorated after imprisonment and they develop psychiatric disorders[8]. Mental disorders prevalence was 5-10 times higher than the general population. A review of literature in 24 countries showed prevalence of depression 10% in male and 14% in female prisoners, and about 4% of psychotic illness in both genders[9]. Severe mental illness prevalence 10-15%, while 2% among general population. Over 50% of prisoners in the United States with mental health problems: state prisoners 56%, federal prisoners 45%, and 64% in local jails[10]. According to WHO, health in prison project, done in clearly indicated that something must be done to improve healthcare in prison[11]. The current study was carried out to find the prevalence of psychiatric morbidity and substance abuse among prisoners in Iraqi.

II. Methods and Patients

a) Setting and Design

The current study is a cross-sectional study including analytic component. It was carried out in 3 prisons in Baghdad. The data was collected during the period from December, 1st, 2011 to December, 1st, 2013.

b) Sampling and Study Population

All prisoners, both awaiting trial and sentenced prisoners, both gender were included, using stratified random sampling technique.

c) Inclusion criteria

All the prisoners who entered jail during period of study, aged ≥ 18 years, of both gender, gave informed written consent and accepted to have the interview and participate in this study were included

d) Exclusion criteria

Acute medical illness, refused consent, mental retardation, language barriers, different nationality, age >18 years prisoners were excluded

e) Data collection tools

Socio-demographic variables were collected using an information list filled during interview. Prisoners' Mental status was checked by self-reporting questionnaires (SRQ-20) that was carried by the WHO and used in different countries. The cut-off point of SRQ-20 used by previous studies carried out in Iraq was seven[12]. Prisoners showed scores above cut off point of SRQ-20, were selected for administration of the DSM-IV

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Structured Interview (SCID)[13] which done by consultant psychiatrist. Information regarding substance abuse was collected through the same interview.

f) Definition of variables

Psychiatric morbidity explained by many independent variables. Independent variables were socio-demographic characteristics including; gender, age, marital status, occupation, level of education, smoking habits and duration in prisons.

g) Statistical analysis

Analysis and processing of data was conducted by version 19a statistical package for social sciences (SPSS-19). Results are represented by percentages for qualitative variables. Chi-square was used to find the relation between two qualitative variables. P values were calculated to determine associations between sociodemographic factors and mental illness. P ≤0.05 was taken as statistically significant.

h) Ethical issues

Study was carried out under the agreement of the Iraqi correctional directorate and cooperation with the prisons' health centers. Oral and written consent were taken from the prisoners. Confidentiality was assured to each prisoner.

III. Results

Present study assessed the psychiatric morbidity in Iraqi prisoners. The total number of investigated prisoners was 1447. Participation rate 70%. The age range 25–54 years. Mean age 33.9±7.17 years. About 60% of prisoners were below 35 years age, predominantly male 96.2%, married 74.2%, about 75% low education, self-employed free work 50%., majority were lived with their families 96.2%. About 50% of prisoners stay in prison between 5-10 years (Table 1)

Table 1: Sociodemographic characteristics of the prisoners participate in this study and the correlation with the duration of imprisonment

Sociodemographic characteristics of Iraqi prisoners participate in the study		Duration of Prison						Total (1013)		P
		Below 5 yrs		5 yrs - 10 yrs		More than 10 yrs				
		No.	%	No.	%	No.	%	No.	%	
Age Groups	25 yrs - 29 yrs	123	34.5	163	45.7	70	19.6	356	**35.1**	0.000
	30 yrs - 34 yrs	22	8.3	132	49.8	111	41.8	265	**26.2**	
	35 yrs - 39 yrs	9	5.7	88	55.7	61	38.6	158	15.6	
	40 yrs - 44 yrs	34	32.9	65	61.9	6	5.7	105	10.4	
	45 yrs - 49 yrs	3	2.9	57	54.8	44	42.3	104	10.2	
	50 yrs - 54 yrs	2	8	1	4	22	88	25	2.5	
Gender	Male	182	18.6	489	50.2	303	31.1	974	96.2	0.331
	Female	11	28.2	17	43.5	11	28.2	39	3.8	
Marital Status	Single	47	30.7	56	36.6	50	32.6	153	15.1	0.000
	Married	127	16.8	386	51.3	239	31.7	752	**74.2**	
	Divorced	19	17.6	64	59.2	25	23.1	108	10.7	
Occupation	Employed	30	14.0	104	48.6	80	37.3	214	21.2	0.001
	Unemployed	50	17.4	167	58.4	69	24.1	286	28.2	
	Free Work	113	22.0	235	45.8	165	32.1	513	**50.6**	
Education	Illiterate	51	32.9	59	38.06	45	29.0	155	**15.3**	0.000
	Primary	84	32.4	120	46.33	55	21.2	259	**25.6**	
	Intermediate	34	9.42	206	57.06	121	33.5	361	**35.6**	
	Secondary	14	7.9	108	61.01	55	31.0	177	17.5	
	University	10	16.4	13	21.3	38	62.2	61	6.0	
Living Circumstances	Live with family	187	18.7	498	50	312	31.2	997	**98.5**	0.095
	Live Alone	6	37.5	8	50	2	12.5	16	1.5	
Total		193	19%	506	50%	314	31%	1013	100%	

The prevalence of psychiatric morbidity was high among Iraqi prisoners with nearly three forth of the participants 749 (73.9%). Table 2 shows factors associated with mental illness. The affected participants with psychiatric morbidity were younger age groups (below 35 years) 495 (66.1%), male gender 96%, married 73%, free work occupation 52.5%, low education 77.4%, about half of them was stay in prisons 5-10 years (49.3%), was live within their families (98.5%), smokers (80.4%), substance abusers (50.1%). The age, education, duration of prison, and substance abuse were significantly associated with psychiatric morbidity.

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Table 2: SRQ-20 respondents in relation to some sociodemographic variables

		SRQ responses				Total (1013)		P value
		Negative (264)		Positive (749)		No.	%	
		No.	%	No.	%			
Age Group	25 yrs - 29 yrs	75	28.4	281	**37.5**	356	35.1	0.000
	30 yrs - 34 yrs	51	19.3	214	**28.6**	265	26.2	
	35 yrs - 39 yrs	53	20.1	105	14	158	15.6	
	40 yrs - 44 yrs	39	14.8	66	8.8	105	10.4	
	45 yrs - 49 yrs	33	12.5	71	9.5	104	10.2	
	50 yrs - 54 yrs	13	4.9	12	1.6	25	2.5	
Gender	Male	255	96.6	719	**96**	974	96.2	0.665
	Female	9	3.4	30	4	39	3.8	
Marital Status	Single	36	13.6	117	15.6	153	15.1	0.310
	Married	205	77.7	547	**73.0**	752	74.2	
	Divorced	23	8.7	85	11.4	108	10.7	
Occupation	Employed	67	25.4	147	19.6	214	21.1	0.079
	Unemployed	77	29.2	209	27.9	286	28.2	
	Free Work	120	45.4	393	**52.5**	513	50.7	
Education	Illiterate	25	9.5	130	**17.4**	155	15.3	0.004
	Primary School	81	30.7	178	**23.7**	259	25.6	
	Intermediate	89	33.7	272	**36.3**	361	35.6	
	Secondary	47	17.8	130	17.4	177	17.5	
	University	22	8.3	39	5.2	61	6.	
Duration of Prison	Below 5 yrs	35	13.3	158	21.1	193	19	0.016
	5 yrs - 10 yrs	137	51.9	369	**49.3**	506	50	
	More than 10 yrs	92	34.8	222	29.6	314	31	
Living	Live with family	259	98.1	738	**98.5**	997	98.4	0.408
	Live Alone	5	1.9	11	1.5	16	1.6	
Smoking In Prison	Non Smoker	46	17.4	147	19.6	193	19	0.433
	Smoker	218	82.6	602	**80.4**	820	81	
Substance Abuse	Non abusers	264	100	374	49.9	638	63	0.000
	Abusers	0	0	375	**50.1**	375	37	
Total		264	100%	749	100%	1013	100%	

Clinical interview by consultant psychiatrist for those with positive SRQ-20 responses (749) (73.9%) of the participants, based on DSM-IV check list was done. Interview showed that; generalized anxiety disorder was 7.2% of psychiatric morbidity, obsessive compulsive disorder 1.5%, panic disorder 4.8%, substance abuse 50.1%, depression 11.9%, psychosis 9.2%, schizophrenia 3.2%, post traumatic stress disorder 1.6%, and personality disorder 10.5% of the psychiatric morbidity among Iraqi prisoners (Table 3).

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Table 3: Frequency and percentages of psychiatric morbidity among Iraqi prisoners with SRQ20 positive responses, after clinical interview based on DSM-IV check list.

Psychiatric Morbidity	Total (749)	
	No.	%
GAD	54	7.2 %
PANIC	36	4.8%
PTSD	12	1.6%
OCD	11	1.5%
SUBSTANCE ABUSE	375	50.1%
DEPRESSION	89	11.9%
PSYCHOSIS	69	9.2%
SCHIZOPHRENIA	24	3.2%
PERSONALITY DISORDER	79	10.5%

Table 4 show the frequency and percentages of psychiatric morbidity from the total size of the sample, and correlation with the duration of prison. No mental illness 26.1%. Psychiatric morbidity was 73.9% of the total sample including; generalized anxiety disorder 5.3%, panic disorder 3.6%, posttraumatic stress disorder 1.2%, obsessive compulsive disorder 1.1%, substance abuse 37%, depression 8.7%, psychosis 6.8%, schizophrenia 2.4%, and personality disorder 7.8%.

Table 4: Show the frequency and percentages of psychiatric morbidity among the total sample with statistical relation with duration of imprisonment.

Frequency and percentages of psychiatric morbidity among the total sample with statistical relation with duration of imprisonment		Durations of Prison			Total (1013)		P Value
		<5 yrs	5-10yrs	>10 yrs	No.	%	
SRQ – 20 Responses	Negative	35	137	92	264	26.1%	0.016
	Positive	158	369	222	749	73.9%	
Clinical Diagnosis	No mental illness	35	137	92	264	26.1%	0.000
	GAD	13	22	19	54	5.3%	
	PANIC	7	18	11	36	3.6%	
	PTSD	0	12	0	12	1.2%	
	OCD	2	9	0	11	1.1%	
	SUBSTANCE ABUSE	87	184	104	375	37%	
	DEPRESSION	29	35	25	89	8.7%	
	PSYCHOSIS	9	25	35	69	6.8%	
	SCHIZOPHRENIA	9	14	1	24	2.4%	
	PERSONALITY DISORDER	2	50	27	79	7.8%	
Total		193 (19%)	506 (50%)	314 (31%)	1013	100%	

Table 5 shows the statistical significances of each clinical diagnosis, resulted from the DSM-IV Structured Interview for (SCID), with the sociodemographic characteristics of the Iraqi prisoners included in this study.

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Table 5: Statistical correlation (P value) of the clinical diagnoses with sociodemographic characteristics of the participants of this study; P<0.05 considered for significance

	Substance Abuse	GAD	PANIC	PTSD	OCD	Depression	Psychosis	Schizophrenia	Personality Disorder
Age Group	0.000	0.000	0.022	0.000	0.001	0.000	0.000	0.000	0.000
Gender	0.022	0.000	0.222	0.486	0.505	0.048	0.085	0.321	0.064
Marital Status	0.000	0.017	0.161	0.340	0.145	0.000	0.042	0.014	0.000
Occupation	0.000	0.887	0.021	0.036	0.225	0.761	0.000	0.102	0.048
Education	0.000	0.009	0.024	0.079	0.122	0.006	0.000	0.235	0.000
Prison Duration	0.023	0.359	0.997	0.002	0.057	0.003	0.001	0.005	0.000
Living Circumstances	0.278	0.198	0.557	0.659	0.673	0.211	0.276	0.530	0.241

IV. Discussions

The psychiatric disorders prevalence among Iraqi prisoners within the current study was 73.9%. Significant statistical correlation of psychiatric disorders was found with; age (P<0.001), education (P=0.004), duration of imprisonment (P=0.016), and substance abuse (P<0.001). The prison is a correctional institute in which prisoners have restricted liberty, autonomy, and communication with family and friends. This can be devastating to some prisoners leading to disturbance in their physical, psychological and social status.

current study prevalence is higher than many studies carried out across manycountries and cultures like; Mweene MT (2016) in Zambia (29.8%)[3], Maruf (2015) in Bangladesh (57.2%)[14], Ibrahim (2015) in Ghana (50%)[15], Sepehrmanesh Z (2014) in Iran (43.4%)[1], Armiya'u (2013) in Nigeria (57%)[16], Mundt A P (2013) in Chile (26.6%)[17], Kumar V (2013) in India (33%)[18].

Current study prevalence of mental disorder is less than many studies; Ibrahim E M (2014) Egypt (92.9%)[11], Saha S K (2014) West Bengal (84%)[19], Chan L G (2013) Singapore (88.3%)[20], Goyal S K (2011) India (80.2%)[21].

The prevalence of the current study is nearly synonymous to these studies; Ayirolimeethal (2014) India (68.6%)[22], Andreoli S B (2014) Brazil (68.9%)[23], and Linda and Teplin (1997) America (75 %)[1].

Differences in prevalence rates could partly be explained by differences in sampled populations, methodological issues and classification systems. High prevalence could be due to prison circumstances and long period of isolation, and mental health requirements were recognized less by mental health workers.

This study conclude that mental health services of prisoners required more attention to enhance the level of mental health of prisoners and staff of prison, and concentrated on the role of workers in mental health including specialist psychiatrists, clinical psychologist, mental health nurses and social counselors for early detection and proper management of psychiatric illness among prisoners.

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