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ORIGINAL ARTICLE

Mental Health Disorders among Covid-19 Infected Saudi Cohort

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ABSTRACT

Background: Numerous studies revealed mental health disorders among general population and healthcare workers during Covid-19 pandemic. However, fewer data are available on mental health status of Covid-19 infected patients. Present study was aimed to survey Covid-19 infected Saudi cohort for common mental health disorders.

Objective: To determine the frequency of common mental health disorders (anxiety, depression, insomnia and post-traumatic stress disorders [PTSD]) in Covid-19 infected Saudi cohort.

Design: Descriptive cross-sectional.

Settings: King Fahd Armed Forces Hospital Jeddah, Kingdom of Saudi Arabia (ksa) during March to April 2021

Patients and Methods: The population of the study comprised of cohort of confirmed Covid-19 infected patients (n=310) managed at King Fahd Armed Forces Hospital Jeddah, KSA. The GAD-7 score was used to assess anxiety; Patient Health Questionnaire-9 for depression, Impact of Event Scale–revised for PTSD and Insomnia Severity Index (ISI) was used to assess insomnia.

Results: The most frequent mental health disorder found in the present study was anxiety (77.1%) followed by clinically significant depression (36.1%), insomnia (33.9%), and PTSD (21.6%). Individuals with lower level of education demonstrated one and half fold higher risk of having anxiety (OR of 1.54, 95% CI: 1.006-2.343, P=0.047) and widows demonstrated 2-fold higher risk of developing insomnia (OR of 1.7, 95% CI: 1.028-2.80, P=0.039). No other significant association observed.

Conclusions: A significant proportion of Covid-19 infected Saudi cohort demonstrated mental health disorders, though of mild degree in majority of the participants. Individuals with lower level of education and widows manifested higher risk of developing anxiety and insomnia, respectively.

Keywords: Anxiety; Covid-19; Mental health disorders; Post traumatic stress disorder

INTRODUCTION

The Covid-19 pandemic has alarming implications for individual and collective health and emotional and social function. Based on studies conducted during the 2003 SARS epidemic in Hong Kong, it is expected that many patients with Covid-19 will develop anxiety disorders, depressive disorders, post-traumatic stress disorder (PTSD), and disturbed sleep[1,2,3]. It is hypothesized that the pathogenesis of psychiatric disorders associated with Covid-19 disease include both biologic and psychosocial factors. Covid-19 appears to affect central nervous system (CNS) function and neuropsychiatric symptoms may occur in approximately 20% of patients infected with Covid-19[4,5]. Psychosocial factors include lack of access to medical care, fear of infecting family members, inconsistent directives and messages regarding public health measures, economic hardships and reduced personal freedoms.[6] Several studies have reported psychiatric disorders among healthcare workers and general public during Covid-19 pandemic.[7,8] Fewer data, however, are available regarding psychiatric problems in Covid-19 patients.[4] In a recent systematic review, Rajkumar RP et al demonstrated that common psychological symptoms reported during Covid-19 pandemic are depression and anxiety (16%–28%), self-reported stress (8%) and disturbed sleep.[9] Similar findings were observed among Covid-19 infected Saudi patients.[10,11] In the current study we aimed to evaluate the impact of covid-19 on mental health status of Covid-19 infected Saudi cohort. We aimed to survey for most commonly expected mental disorders like anxiety, depression, PTSD and insomnia.

PATIENTS AND METHODS

It was a descriptive cross-sectional study carried out at King Fahd Armed Forces Hospital Jeddah, Kingdom of Saudi Arabia (KSA). Data were collected during March to April 2021. The population of the study comprised of cohort of Covid-19 infected patients managed at King Fahd Armed Forces Hospital Jeddah, KSA. The disease was confirmed through reverse-transcription polymerase chain reaction (RT-PCR). The sample size (n=310) of diagnosed cases of Covid-19 was estimated taking $\alpha = 0.05$, a margin of error (d) as 0.05. The proportion of Covid-19 infected patients with psychological comorbidities was estimated as 28%, based on a previous study.[9] All the enrolled patients had uncomplicated upper respiratory tract viral infection. Patients on chronic immunosuppressive therapy, pregnant women and those who had already documented psychiatric disorders were excluded. The doctors (mostly residents and trainees) at King Fahd Armed Forces Hospital Jeddah, KSA were the co-investigators who interviewed the respondents in a random fashion. The purpose of the study was properly explained to each respondent and verbal consent was obtained from each respondent. The questionnaires were explained by the interviewing doctors in both English and Arabic. Each co-investigator was

assigned to cover a preset number of patients (50-60 each) as per hospital record. Duplication was avoided by mentioning the name, contact number and unique hospital record number of each respondent on each set of Annexure to be given to the respondents. The data was finally consolidated by principal investigator. In the present study, we assessed commonly reported mental health disorders like anxiety, depression, PTSD and insomnia. The GAD-7 score was used to assess anxiety; Patient Health Questionnaire-9 for depression, Impact of Event Scale–revised for PTSD and Insomnia Severity Index was used to assess insomnia. SPSS version 22.2 was used for data analysis purpose. Ranked data was presented as frequency (percentage) and continuous data as mean (SD). To assess the independent influence various variables on outcome, we performed regression analysis and a P value of ≤0.05 was considered significant.

RESULTS

The mean age of study participants was 51.5±18.4 years. Other demographic information is tabulated in table 1. The most frequent mental health disorder reported was anxiety (77.1%) followed by clinically significant depression (36.1%), insomnia (33.9%), and PTSD (21.6%). The proportions of mental health disorders of different severity are showed in figure 1. Individuals with lower level of education manifested one and half fold higher risk of developing anxiety (OR of 1.54, 95% CI: 1.006-2.343, P=0.047, table 3). An approximately two-fold higher risk of developing insomnia was observed among widows (OR of 1.7, 95% CI: 1.028-2.80, P=0.039, table 3). No other significant association was found.

Table 1: Demographic information

AGE (years) Mean(SD)	51.5(18.4)
AGE GROUPS n (%)	
20-30 years	56 (18.1)
31-40 years	33 (10.6)
41-50 years	50 (16.1)
51-60 years	71 (22.9)
>60 YEARS	100 (32.3)
GENDER n (%)	
Males	150 (48.4)
Females	160 (51.6)
MARITAL STATUS n (%)	
Single	42 (13.5)
Married	232 (9.7)
Widow	30 (1.1)
Divorced	6 (1.9)
RESIDENTIAL STATUS n (%)	
Urban	266 (85.8)
Rural	44 (14.2)
SE STATUS n (%)	
Low	41 (13.2)
Middle	245 (79.1)
High	24 (7.7)
EDUCATION STATUS n (%)	
≤5 School years	103 (33.2)
6-12 School years	89 (28.7)
>12 School years	118 (38.1)

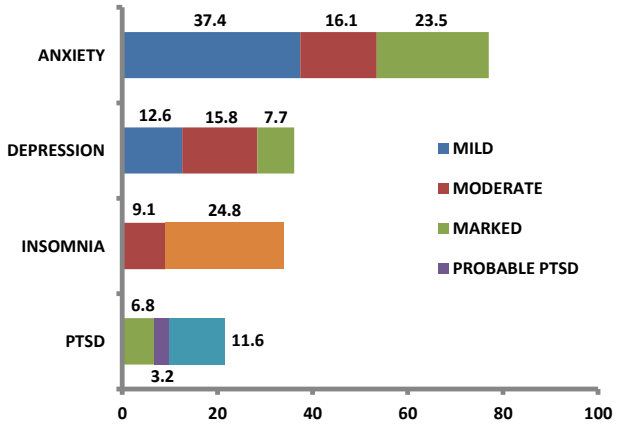

Figure 1: Different mental health disorders in the study population (percentage)

Table 2: Results of binary logistic regression analysis showing odds ratios and confidence intervals for studied variables

Mental Health Disorder	Variables	B	S.E.	Wald	df	Sig.	Exp(B) 'OR'	95% C.I. for EXP(B)	
								Lower	Upper
Depression	Age	-.359	.113	10.131	1	.001	.698	.560	.871
	Gender	-.101	.247	.168	1	.682	.904	.557	1.466
	Marital Status	-.053	.271	.039	1	.844	.948	.558	1.612
	Residence	-.897	.401	4.988	1	.026	.408	.186	.896
	SE status	.032	.304	.011	1	.916	1.032	.569	1.875
	Education	-.160	.185	.751	1	.386	.852	.593	1.224
Anxiety	Age	-.168	.116	2.078	1	.149	.846	.673	1.062
	Gender	-.576	.284	4.125	1	.042	.562	.322	.980
	Marital Status	-.408	.266	2.356	1	.125	.665	.395	1.120
	Residence	-.468	.440	1.131	1	.287	.626	.264	1.483
	SE status	-.276	.348	.628	1	.428	.759	.384	1.501
	Education	.429	.216	3.946	1	.047	1.535	1.006	2.343

Insomnia	Age	-.078	.109	.516	1	.473	.925	.746	1.145
	Gender	-.703	.253	7.709	1	.005	.495	.301	.813
	Marital Status	.529	.256	4.283	1	.039	1.697	1.028	2.800
	Residence	-.522	.395	1.746	1	.186	.593	.273	1.287
	SE status	.314	.308	1.040	1	.308	1.369	.748	2.505
	Education	-.032	.191	.028	1	.867	.968	.666	1.408
PTSD	Age	-.145	.126	1.324	1	.250	.865	.676	1.107
	Gender	-.438	.287	2.328	1	.127	.645	.368	1.133
	Marital Status	.008	.312	.001	1	.979	1.008	.547	1.859
	Residence	-1.470	.640	5.280	1	.022	.230	.066	.806
	SE status	.125	.359	.121	1	.728	1.133	.561	2.287
	Education	-.303	.215	1.974	1	.160	.739	.485	1.127

DISCUSSION

A significant proportion of Covid-19 infected Saudi patients manifested mental health disorders, however, of mild degree in most of them. Anxiety (77.1%) was the most frequent mental health disorder observed followed by clinically significant depression (36.1%), insomnia (33.9%), and PTSD (21.6%). Our results are comparable with a study conducted by Alamri HS et al who surveyed 261 Covid-19 patients in Saudi Arabia and found borderline anxiety (13%), significant anxiety (26.8%), borderline depression (29.9%), and clinically significant depression (18.4%) as the frequently observed mental health disorders.[10] Our results are also similar with Alodhayani AA et al who surveyed quarantined Covid-19 individuals for their mental health and revealed that females (OR 1.8, CI: 1.1–3.1; P = 0.03), government employment (OR 2.8, CI: 1.1–7.0; P = 0.03) and lower education level (OR 2.3, CI: 1.0–5.4; P = 0.049) were the associated risk factors.[11] We have also found higher risks for widows (OR of 1.7, 95% CI: 1.028-2.80, P=0.039) and patients with lower education level (OR of 1.54, 95% CI: 1.006-2.343, P=0.047) in the present study. We did not account for employment status of participants in our study.

Studies among general population of Saudi Arabia revealed that psychological distress was found among 30-40% of the population during the pandemic.[12,13] We observed higher prevalence of mental disorders in Covid-19 infected patients, particularly anxiety and depression. Similar findings are observed by Alamri HS et al[10] and Alodhayani AA et al.[11] A recent study observed psychological instability among Covid-19 infected patients that was most likely attributed to physical isolation from family members or loved ones during hospitalization or quarantine.[14] Another study reported high rates of PTSD are among Covid-19 infected people after discharge from the hospital.[15] Higher risk of depression was reported among Covid-19 patients in another recent study[16]. Finally, several studies on previous coronavirus epidemics suggest that patients infected with Covid-19 may manifest psychiatric symptoms and disorders.[2,3] A systematic review comprising of 60 studies examined more than 2500 hospitalized patients infected with SARS or Middle East respiratory syndrome.[17] The study found that 20% to 40% of patients manifested neuropsychiatric symptoms during acute infection (insomnia 42%, anxiety 36%, depression 33% and impaired attention 38%).

Anxiety and depression are the major mental disorders observed in Covid-19 infected individuals that may have a considerable impact on overall quality of life. The disorders may lead to delayed recovery and longer durations of hospitalizations. We do not have enough information about the course of these mental health disorders in Covid-19 infected individuals. However, previous studies on coronavirus epidemics showed that these disorders may persist for long duration after recovery.[3] A systematic review (6 studies, n > 500 cases) highlighted that in patients hospitalized for severe acute respiratory syndrome (SARS) or Middle East respiratory syndrome (MERS), psychiatric disorders persisted 3 to 46 months after recovery from infection.[3] It is expected that the prevalence of long-term psychiatric illness secondary to Covid-19 may be even higher due to an increased social disruption and economic crisis caused by the Covid-19 pandemic. Accordingly, prompt identification of mental health disorders is important in these patients in order to improve outcomes. Moreover, a comprehensive strategy is needed to psychologically support these patients over a longer duration. Setting up of multidisciplinary clinics for continuous support after hospital discharge may be beneficial.

The major limitation of the study is its cross-sectional nature. It is hard to establish a causal relationship between variables in these study designs. Nonetheless, the information may be helpful as far as identifying the vulnerable population and further planning is concerned. An inherent problem of such surveys is the recall bias. However, efforts were made to minimize it and questionnaires did not require the respondents to recall the events beyond the previous two weeks. Current survey was conducted among cohort of patients admitted at a single healthcare facility, hence limiting the generalizability of results. Moreover, we also excluded those patients who had already documented psychiatric disorders and hence, was difficult to infer whether those patients likely to be more adversely affected.

CONCLUSION

A significant proportion of Covid-19 infected Saudi cohort demonstrated mental health disorders, though of mild degree in majority of the participants. Individuals with lower level of education and widows manifested higher risk of developing anxiety and insomnia, respectively. We

recommend that a comprehensive strategy may be devised to psychologically support these patients over a longer duration. Setting up of multidisciplinary clinics for continuous support after hospital discharge may be beneficial.

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