

Psychological Impact of Covid 19 and Associated Factors among Chronic follow Patients at Jimma University Medical Center, Jimma, Southwest, Ethiopia

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Abstract

Background: Corona virus disease 2019(COVID-19) is an illness caused by a novel corona virus called Severe Acute Respiratory Syndrome Corona virus 2, the ongoing COVID-19 pandemic is inducing fear, and a timely understanding of mental health status is urgently needed for society. The COVID-19 pandemic has caused moderate to extremely severe depression and anxiety among people with chronic medical illness.

Objective: This study aims to determine the psychological impact of COVID-19 and its associated factors among chronic disease patients at Jimma Medical Center (JMC), Jimma, southwest, Ethiopia, 2021.

Methods: A hospital-based cross-sectional study design was implemented among 262 chronic disease patients on follow-up in Jimma at Jimma Medical Center from August 10 to September 8, 2021. Impact of Event Scale Revised the tools used for assessment psychological impact. Both binary and multivariable logistic regression analyses were performed to identify the predictor's psychological impact. The statistical significance of the association between the dependent and independent variables was declared at p -value < 0.05 .

Result: The mean age of the study participant's was 53.3 (SD \pm 14.11). The overall prevalence of abnormal psychological impact was reported to be 16.7% of total study participants. Those whose age group was between 40-59 years (AOR = 7.01; 95%CI: 1.166 - 42.25), those who had chronic disease duration between 5-10 years (AOR = 5.4; 95%CI: 1.05 - 29.09), and finally those who had utilized face mask (AOR = 0.02; 95%CI: 0.002 - 0.294) were predictors for psychological impact of COVID-19.

Conclusion: The psychological impact of COVID-19 among chronic disease patients was higher than international figures. Age, and chronic disease duration was more likely to have psychological problems. Finally, face mask utilization was protective of the psychological problems during COVID-19.

Keywords: Psychological Impact; COVID-19; Chronic; Follow-Up; Jimma Medical Center; Southwest Ethiopia

Abbreviations

AOR: Adjusted Odds Ratio; CI: Confidence Interval; COVID: Corona Virus; IES-R: Impact of Events Scale Revised; JMC: Jimma Medical Center

Introduction

Corona virus disease 2019 is an illness caused by a novel corona virus called Severe Acute Respiratory Syndrome, Corona virus 2 (SARS-CoV-2), COVID-19 is an emerging public health problem which was discovered in December 2019, in Wuhan city, China [1]. Globally, around 236,679,077 confirmed cases 4833,341 deaths of COVID-19 have been reported as of October 6, 2021. In Ethiopia, there are 350,204 confirmed cases and 5811 deaths as reported on October 6, 2021 [2].

The ongoing COVID-19 epidemic is inducing fear, and a timely understanding of mental health status is urgently needed for society [3]. In the early phase of the SARS outbreak, a range of psychiatric morbidities, including persistent depression, anxiety, panic attacks, psychomotor excitement, psychotic symptoms, delirium, and even suicidality, were reported [4]. The COVID-19 pandemic has caused moderate to extremely severe depression (16.5%) and anxiety (25%) in Spain, and 32.4% and 18.7% of moderate to severe depression in Italy [5]. During the SARS outbreak, many studies investigated the psychological impact on the noninfected community, revealing significant psychiatric morbidities which were found to be associated with younger age and increased self-blame [6].

Chronic medical disease with the most consistent evidence of adverse impact on COVID-19 includes lung disease, heart conditions, obesity, physical illness, respiratory failure, and diabetes mellitus [7,8]. Psychosocial and support expressions have significantly increased during the COVID-19 crisis mental health symptoms have increased by about 14%, and support expressions have increased by about 5% [9]. COVID-19 attacks multi-systems frequently, mental health by causing psychological distress and the psychological well-being of people in which people with background medical problems [10-13].

Some studies were conducted to assess the psychological impact of COVID-19 on chronic illness patients in China, study population was chronic kidney disease [14], Canada the study population was preexisting chronic illness and Dessie Ethiopia [15,16]. This study aimed to determine the psychological impact of COVID-19 and its associated factors among chronic disease patients at JMC.

Methods And Materials

Study area and period

The study was conducted at Jimma Medical Centre in Jimma City. JMC is found in Jimma zone, Oromia, Ethiopia. It is situated 335 km southwest of Addis Ababa. It is one of the oldest hospitals in Ethiopia and it is the only teaching and referral hospital in Southwest Ethiopia with 800 bed capacity and a catchment population of more than 15 million people found in Southwest region. The study was conducted from August 10 to September 8, 2021.

Study design and population

A hospital-based cross-sectional study design was implemented. All chronic disease patients who attended the chronic clinics at JMC were the source population.

Inclusion and exclusion

All patients with chronic diseases who attended the medical referral clinic at JMC during the data collection period were included. Patients with hearing problems, psychiatric problems, neurological case, and critically ill were excluded from study.

Sample size determination and sampling technique

The sample size was estimated by a single population proportion formula with finite population correction. The following parameters have been considered: 22.8% prevalence based on a study conducted in Dessie town Ethiopia(16), 95% confidence interval, 5% margin of error. By considering the above assumptions, the calculated sample size was 310. Since the expected general population was 4110per month according to a 6 month review of the record of the registration book at JMC medical follow-up clinic. We use the correction formula and then 10% of nonrespondents rate adds. The final sample size was calculated to be 262. Study participants were enrolled by a simple random sampling technique.

Data collection tools and procedures

A pretested, structured interviewer administered questionnaire was used for data collection, which contains three sections, Socio demographic variables, Clinical characteristics, and psychological impact assessment. We used standard tools, Impact of Event Scale Revised (IES-R) for assessment of psychological impact, and it has been well validated in the Chinese population for determining the extent of psychological impact after exposure to a public health crisis, which contains 22 items the questionnaire is composed into three subscales and aims to measure the mean avoidance, intrusion and hyperarousal. For all questions, scores could range from 0 through 4 (0 ¼ not at all, 1 ¼ a little, 2 ¼ moderately, 3 ¼ quite a bit, 4 ¼ extremely). The total IES-R score was divided into 0 - 23 (normal or minimal), 24 - 32 (mild psychological impact), 33 - 36 (moderate psychological impact), and > 36 (severe psychological impact) [17-19].

Data collection procedure and quality control

Data collector had been trained with the aid of training by the main investigator for 2 days on the goals of the study, interviewing techniques, on chart evaluation procedures and instruments. The pre-test had been conducted at Shene Gebe hospital (with 5% of the sample size) on the medical referral clinic follow-up patients and then adjustments had been done accordingly. The questionnaire was checked for consistency and completeness before data entry.

Data processing and analysis

Data was coded and entered using Epi data 3.1 and then exported to SPSS (statistical package software for Social science) version 23.0 for statistical analysis. Descriptive statistics of continuous variables were presented by using median or mean, and discrete variables presented by using percentages, tables and graphs. Both binary and multivariable logistic regression analyses were performed to identify the predictor's psychological impact. The variables in bivariate analysis with $p < 0.25$ were entered into a multivariable logistic regression model. Adjusted odds ratio (AOR) with a 95% confidence interval (CI) was used to determine the association between dependent and independent variables. The statistical significance of the association between the dependent and independent variables was declared at p -value < 0.05 .

Result

Socio demographic characteristics of the study participants

A total of 262 chronic patients on follow-up at JMC were included in the study. The mean age of the study participants was 53.3 (SD \pm 14.11). From the total of study participants, 138 (52.7%) were male, above half of the study participants, 141 (53.8%) were aged between 40-59 years. Around three-fourths of the study participants, 200 (76.4%) were married, two-thirds of the study participants, 175 (66.8%) were living in rural areas. One hundred and thirty-nine (53.1%) had no formal education and almost half of the study participants, 133(50.8%) were farmers (Table 1).

Variables	Frequency	Percentage
Sex		
Male	138	52.7
Female	124	47.3
Age in years		
20-39	47	17.9
40-59	141	53.8
>60	74	28.2
Marital status		
Single	14	5.3
Married	200	76.4
Divorced	14	5.3
Widowed	34	13
Residence		
Urban	87	33.2
Rural	175	66.8
Educational status		
No formal education	139	53.1
Primary and Secondary school	105	40
College and above	18	6.9
Occupation		
Housewives	59	22.5
Farmer	133	50.8
Merchant	28	10.6
Employed	27	10.3
Retired	15	5.7

Table 1: Socio-demographic characteristics of study participants among chronic follow-up patients in JMC, Jimma, southwest, Ethiopia, 2021.

Clinical characteristics and risk assessment of study participants

One third of the study participants, 88 (33.6%) had hypertension, half of the study participants, 132 (50.6%) had duration of chronic disease between 5 - 10 years. Around majority of the study participants, 209 (79.8%) had members of community health insurance, one-third of the participants, 206 (78.6%) had the presence of respiratory symptoms in the last two weeks. Above the majority of the study participants, 233 (88.9%) had no travel history to other areas in the last 2 weeks, above ninety-four of the study participants, 248 (94.7%) had no Isolated/Quarantined history due to COVID-19 pandemic. Above one-third of the study participants, 204 (77.9%) had occasionally used facemask utilization and two-thirds of the study participants, 161 (65.1%) had no use hand sanitizer during Covid pandemic (Table 2).

Variable	Frequency(N=262)	Percentage (%)
Type of chronic disease		
Hypertension	88	33.6
Diabetes mellitus	17	6.5
Chronic Heart disease	74	28.2
Chronic lung disease	15	5.7
Co-morbidity	54	20.6
Others	14	5.3
Duration of chronic disease in year		
<5	132	50.4
5-10	72	27.5
>10	58	22.1
Member of community health insurance		
Yes	209	79.8
No	53	20.2
Presence of respiratory symptoms in the last 2 weeks		
Yes	56	21.4
No	206	78.6
Travel history to other areas in the last 2 weeks		
Yes	29	11.1
No	233	88.9
Isolated/Quarantined due to COVID-19		
Yes	14	5.3
No	248	94.7
Face mask utilization		
Always	29	11.1
Sometimes	14	5.3
occasionally	204	77.9
Never	15	5.7
Hand sanitizer use		
Always	15	5.7
Sometimes	43	16.4
occasionally	43	16.4
Never	161	61.5

Table 2: Clinical characteristics of study participants among chronic follow-up patients in JMC, Jimma, southwest Ethiopia, 2021.

Psychological impact of COVID-19 among chronic disease patients

The psychological impact of COVID-19 among chronic disease patients, measured by IES-R scale, revealed a mean score of 10.41 (SD ± 8.93). From all respondents, 218 (83.3%) had minimal (Normal) psychological impact, and 26 (9.9%) participants had mild psychological impact. From all study participants, 13 (4.9%) and 5 (1.9%) had moderate and severe psychological impact, respectively.

Overall, Covid-19 resulted abnormal psychological impact in 16.7% of chronic diseases. For the IES-R, the subscale of psychological impacts, the mean scores of Intrusion, Avoidance, and hyper-arousal were 2.18 (SD ± 1.98), 3.46 (SD ± 2.11), and 2.11 (SD ± 2.01), respectively.

Serial no.	Psychological impact of COVID-19 pandemic	Not at all N (%)	A little bit N (%)	Moderately N (%)	Quite a bit N (%)	Extremely N (%)
1	Any reminder brought back feelings about it	166 (63.4%)	54(20.6%)	28(10.8%)	11(4.2%)	3 (1.1%)
2	I had trouble staying asleep	235 (89.7%)	20(7.6%)	4 (1.5%)	2 (0.8%)	1 (0.4%)
3	Other things kept me thinking about it	234(89.3%)	21(8%)	3(1.1%)	3 (1.1%)	1 (0.4%)
4	I felt irritable and angry	217 (82.9%)	36(13.7%)	6 (2.3%)	1 (0.4%)	2(0.8%)
5	I avoided letting myself get upset when I thought or was reminded of it	17 (66.8%)	52 (19.8%)	25 (9.5%)	8(3.1%)	2 (0.8%)
6	I thought about it when I didn't mean to	231 (88.2%)	18 (6.9%)	8(3.1%)	3 (1.1%)	2 (0.8%)
7	I felt as it hadn't happened or wasn't real	250 (95.4%)	69(3.4%)	2 (0.8%)	1 (0.4%)	
8	Stayed away from reminders of it	194 (74%)	51 (19.5%)	8 (3.1%)	4 (1.5%)	5 (1.9%)
9	Pictures about it popped in to my mind	235 (89.7%)	19 (7.3%)	4(1.5%)	2(0.8%)	2(0.8%)
10	I was jumpy and easily startled	244 (93.1%)	10(3.8%)	3(1.1%)	3 (1.1%)	2 (0.8%)
11	I tried not to think about it	213 (81.3%)	40 (15.3%)	6(2.3%)	2 (0.8%)	1 (0.4%)
12	I was aware that I still had feelings about it but I didn't deal with them	224(85.5%)	26(9.9%)	7 (2.7%)	3(1.1%)	2 (0.8%)
13	My feelings about it were kind of numb	50 (19.08%)	77 (29.4%)	120 (45.8%)	12 (4.6%)	3 (1.1%)
14	I found myself acting or feeling like I was back at that time	218 (83.2%)	22 (8.4%)	17 (6.7%)	3 (1.1%)	2 (0.8%)
15	I had trouble falling asleep	235 (89.7%)	18 (6.9%)	4 (1.5%)	5(1.9%)	2 (0.8%)
16	I had waves of strong feelings about it	186 (75%)	38 (14.5%)	8 (3.1%)	13 (4.9%)	17 (6.5%)
17	I tried to remove it from my memory	192 (73.3%)	38 (14.5%)	20 (7.6%)	9(3.4%)	3(1.1%)
18	I had trouble concentrating	239 (91.2%)	7 (2.7%)	9 (3.4%)	5 (1.9%)	2 (0.8%)
19	Reminders of it caused me to have physical reactions like sweating, nausea, trouble breathing or pounding heart	245 (93.5%)	11 (4.2%)	2 (0.8%)	2 (0.8%)	2(0.8%)
20	I had dreams about it	241 (92%)	12 (4.6%)	3 (1.1%)	3(1.1%)	3(1.1%)
21	I felt watching and on guard	120 (45.8%)	28 (10.1%)	46 (17.6%)	41 (15.6%)	27 (10.3%)
22	I tried not to talk about it	225 (85.9%)	12 (4.6%)	15 (5.7%)	4(1.5%)	6 (2.3%)

Table 3: Psychological impact of COVID-19 among chronic disease patients with follow-up at JMC, Jimma, Oromia, Southwest, Ethiopia, 2021.

Scale value	Categories	Frequency	Percentage (%)
Impact of Scale Event(n=262)	Normal or minimal(0-23)	218	83.3
	Mild(24-32)	26	9.9
	Moderate(33-36)	13	4.9
	Sever (>36)	5	1.9
Total of impact from Mild to Sever(≥24)		44	16.7
Subscale(Range of score)	Items	Mean	SD
Intrusion(0-32)	Q.1,2,3,6,9,14,16,20	2.187	1.98
Avoidance(0-32)	Q.5,7,8,11,12,13,17,22	3.469	2.10
Hyper -arousal(0-24)	Q.4,10,15,18,19,21	2.11	2.01

Table 4: Overall prevalence impact of COVID-19 among chronic disease patients on follow-up at JMC, Jimma, Oromia, Southwest, Ethiopia, 2021.

Predictors of psychological impact of COVID-19 among chronic disease patients

In bivariate analysis, factors such as age, educational status, residency, duration of chronic disease, membrane of community health insurance, presence of respiratory symptoms in the last two weeks, travel history to other areas in the last two weeks, and face mask utilization were strongly associated with the psychological impact of COVID-19. According to multivariable analysis result, three variables were found to be significantly associated with the psychological impact of COVID-19 at p-value < 0.05.

In multivariable logistic regression; those were age group between 40-59 years were 7 times more likely to have psychological problems during COVID-19 than patients with an age group between 20-39 years (AOR = 7.01; 95%CI: 1.166 - 42.25; p-value;0.03), those who had chronic disease duration between 5-10 years 5.4 times more likely to have psychological problem than patients with short duration of disease (AOR=5.4;95%CI: 1.05-29.09;p-value:0.04), and finally those who had face mask utilization occasionally were less likely to have psychological problem during COVID-19 than patients who had always face mask utilization (AOR=0.02;95%CI: 0.002-0.294,p-value:0.00) (Table 5).

Variables	Psychological impact		OR (95%CI)		
	Normal	Abnormal	COR	AOR	P-value
Age in year					
20-39	45	2	0	0	0.03
40-59	11	30	6.08(1.39-26.25)	7.01(1.166-42.25)	
>60	64	10	3.51(0.73-16.82)	4.87(0.718-33.03)	
Educational status					
No formal education	130	9	0.08(0.03-0.19)	0.16(0.086-4.426)	
Primary and secondary school	54	4	0.09(0.03-0.28)	0.67(0.089-5.102)	
College and above	36	29	0	0	
Residency					
Urban	69	18	0		
Rural	151	24	1.64(0.836-3.221)	1.42(0.294-6.894)	

Duration of chronic disease					
<5	124	8	0		
5-10	42	30	0.87(0.252-3.016)	5.40(1.05-29.09)	0.04
>10	54	4	9.64(3.151-29.50)	4.34(0.671-28.10)	
Member of community health insurance					
Yes	170	39	0		
No	50	3	3.82(1.113-12.89)	0.75(0.168-3.374)	
Presence of respiratory symptoms in the last 2 weeks					
Yes	139	17	0		
No	181	25	3.15(1.557-6.398)	1.72(0.553-5.357)	
Travel history to other areas in the last 2 weeks					
Yes	27	2	0.35(0.082-1.564)	0.68(0.127-3.720)	
No	193	40	0		
Face mask utilization					
Always	2	15	0		
Sometimes	16	10	0.08(0.016-0.444)	0.26(0.03-2.377)	
Occasionally	189	11	0.00(0.002-0.038)	0.02(0.002-0.294)	0.00
Never	13	6	0.06(0.011-0.359)	0.24(0.02-2.998)	

Table 5: Predictors of psychological impact of COVID-19 among chronic disease patients on follow-up at JMC, Jimma, Oromia, Southwest, Ethiopia, 2021.

Discussion

The intersection of COVID-19 with preexisting chronic medical illness (e.g., cardiovascular disease, diabetes, chronic lung disease) raises additional challenges to the patient for managing multiple treatment cascades. The problems of COVID-19 on mental health and bureaucratic responses to the outbreak are not exactly unprecedented. Mental health and emergency response systems must work together to identify, establish, and allocate evidence-based resources such as disaster-related mental health, psychological well-being, crises among special needs patients.

In our current study, COVID-19 had caused an abnormal psychological impact in 16.7% of chronic disease patients on follow-up of study participants. This finding is lower than the study conducted in Dessie Ethiopia (22.8%) [16], India (33.2%) [17] and China (75.5%) [20]. The possible discrepancy may be due to the difference in study setup, time and community-based studies in Indian and China.

In our study, patients with advanced age were more likely to have psychological problems than patients with younger age. This is consistent with a study conducted in Indian community [17], and in China [14]. The possible mechanism how psychological impacts affects old age by causing slow and steady physical impairment and functionally disability due to aging [21,22].

In our study, patients with longer duration of chronic disease (5 - 10 years) were more likely to have had psychological problems than patients in the early period of disease. This is consistent with a study conducted in Dessie, Ethiopia [16] and Indian community [17]. This may be because longer duration of disease causes decreasing in quality of life [23], chronic stress [24], depression and anxiety [25]. In cur-

rent study, strictly face mask utilization was protective of the psychological problems during COVID-19. In the same way, strictly face mask use was recommended as protective against COVID-19, which may lead to psychological trust in users [26,27].

Limitations of the study were the severity of psychological impact was not considered during the identification of risk factors, cross-sectional nature of the study design, and subjective nature of tools.

Conclusion

The mean age of the study participants was 53.3 (SD ± 14.11). The psychological impact of COVID-19 among chronic disease patients, measured by IES-R scale, 26 (9.9%) of the participants had mild psychological impact, 13 (4.9%) and 5 (1.9%) had moderate and severe psychological impact, respectively. Age group between 40 - 59 years were seven times at risk of having psychological problem during COVID-19 than patients with age group between 20-39 years, chronic disease duration between 5-10 years 5.4 times more likely to have psychological problem than patients with short duration of disease, and finally face mask utilization was protective of the psychological problems during COVID-19.

Ethical Statement

Ethical approval was taken from Research Ethical Committee of Jimma University with IRB/011/2021. Written informed consent was obtained from all participants in the local language before interview. Data was kept confidential. The rights to withdraw from the study were respected.

Informed Consent

Informed consent was obtained from all study participants included in the study.

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