Psychological problems and associated factors during COVID-19 pandemic in Ethiopia

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Abstract:

Objective: Psychological problems like depression, anxiety, and stress are common in the general population and they have a negative impact on the well-being of the community as well as the country. Pandemic diseases like COVID-19 increase the prevalence of psychological problems in the community. Studying psychological problems and associated factors in the community is very crucial for community mental health management. However, evidence is scarce in Ethiopia. Therefore, this study aimed to assess the prevalence of psychological problems and factors in the community during the COVID-19 pandemic in Shashemene Town, Oromia, Ethiopia.

Methods: A community-based cross-sectional study was conducted from February 01,2012 to February 28, 2021. A structured, pretested, and interviewer-administered questionnaire was used to collect data from 889 study participants selected through a simple random sampling technique. The data was collected using the depression, anxiety, and stress scale (DASS-21) questionnaire and analyzed using SPSS version 25.0. Bivariable and multivariable logistic regression was done to determine factors associated with DAS. Adjusted odds ratio with their 95% confidence intervals were calculated to identify the presence and strength of an association, while statistical significance was reported at P<0.05.

Results: The prevalence of psychological problems was 96.6% [95% Cl: 95.9,98.1]. The overall prevalence of depression and anxiety were 30% and 43.5% respectively. Having COVID-19 symptoms in the past two weeks before the survey (AOR=0.34; 95% Cl: 0.15,0.77) and having known medical problems (AOR=0.28; 95% Cl: 0.13,0.59) were factors significantly associated with a psychological problem in response to COVID-19 pandemic.

Conclusion: The prevalence of psychological problems in response to the COVID-19 pandemic infection was very high in the study area. It needs immediate action to alleviate this psychological problem crisis in the community.

Keywords: COVID-19 Pandemic; Psychological Problems; Shashemene Town

1. Introduction

Coronavirus disease 2019 (COVID-19) is severe acute respiratory infec-tion (SARI) that occurred in early December 2019 in China at Wuhan city. The novel coronavirus was renamed as COVID-19 by World Health Organization (WHO). The transmission of the virus has been augmented quickly and has spread all over the world in more than 196 countries. The epidemic was ac-knowledged as a public health crisis of global distress by the WHO (1,2). Ethiopia was declared the first confirmed COVID-19 case on March 13, 2020 (3). The existing situation burdens the enforcement of strict laws which would help to preventing the further spread of COVID-19 such as social isolation; international travel restrictions to victim countries and hygiene were three important ways to prevent the spread of sever acute respiratory syndrome corona virus 2 (SARS-CoV-2) (2).

People who are impacted by COVID-19 had not done anything mistaken, and they ought to have our support, compassion and kindness because this crisis is enhancing stress on all over the population (4). Most people who acquire COVID-19 had a mild form of the sickness and recover without needing specialized medical care, around eight out of every 10 people with COVID-19 had soft symptoms and around one in six people will become harshly ill and need hospital care. Technical modeling suggests that around 1 in 100 people who acquire COVID-19 will die (5).

The mental health cost of COVID-19 epidemic is already strongly noticeable, ranging from stress associated with risk of infection, quarantine, or self-isolation, throughout to the traumatic experiences of unexpected loss of lives and livelihoods within families and communities (6). A circumstance of socio-economic crisis and deep psychological distress

quickly occurred worldwide. Different psychological problems and vital consequences in terms of psychological problems including stress, anxiety, depression, frustration, insecurity during COVID-19 epidemic emerged progressively. Furthermore, numerous serious neurologic complications have been related with COVID-19 (6,7,8). Therefore, this study aimed to assess the prevalence of psychological problems and factors in the community during the COVID-19 pandemic in Shashemene Town, Oromia, Ethiopia.

2. Methods

2.1. Study design

A community based cross-sectional study was carried out from February 01 to February 28, 2021 in Shashemene town. Shashemene town is located in Oromia regional state, approximately 250 km from southeast of Addis Ababa, capital city of Ethiopia. Shashemene has eight kebeles (the smallest unit of administration) (14).

All individuals who were 18 years & above and resided for at least six month and above in Shashemene town were the source population and the study population of this study .But those with serious illness and mental problems the subject that excluding from the study.

2.2. Data collection

The data was collected by four trained health professionals by face to face interview using pre-tested structured questionnaire via implementing COVID-19 prevention protocols. The questionnaire was adopted from pervious study and composed of three parts; first part was socio-demographic characteristic of respondents, the second part of the questioner was depression, anxiety, and stress (DASS-Scale 21) used to determine the presence or absence of symptoms of three sub-scale depression, anxiety, and stress among respondents in response to COVID-19 pandemic.

It has 21 items scored (1-2); 1=indicate have symptoms and 2=indicate no symptoms. The question 1-7 were related to the depression subscale. The score of depression subscale was; normal (0–9), mild depression (10–12), moderate depression (13–20), severe depression (21–27), and extremely severe depression (28-42). Questions 8-14 were related to the anxiety subscale. The score of anxiety subscale was; normal (0–6), mild (7–9), moderate (10–14), severe (15–19), and extremely severe (20-42). Questions 15-21 were related to the stress subscale. The score of stress subscale was; normal (0–10), mild stress (11–18), moderate stress (19–26), severe stress (27–34), and extremely severe stress (35-42) adapted from Gonder, China and Addis Ababa (10,11,12).

The third part of the questioner was the current knowledge, attitude, and practice (KAP) about the corona-virus (COVID-19). It has 23 items; seven questions were related to knowledge; seven questions were related attitude, and nine questions were related to practice which were adapted from the WHO (15).

Those participants who scored above the mean on knowledge questions were considered as having good knowledge and those who scored less than mean were considered having poor knowledge. Those participants who scored above mean on attitude question was considered as having positive attitude and those who scored less than mean were considered as having negative attitude.

Those participants who scored above the mean on practice questions were considered as having good practice and those who scored less than mean were considered as having poor practice (15).

The dependent variable of the study was psychological problem which was categorized into two levels: having psychological problem or not having psychological problem. The independent variables considered in the study include: socio-demographic characteristics of the respondents, health status of the respondents, KAP on response to COVID-19 pandemic.

2.2.1. Measurement
• No psychological problem: effective functioning in daily activities and no problems of depression (DASS-21 score below 10), anxiety (DASS-21 score below 7), and stress (DASS-21 score below 7) (9,10,11).
• Have psychological problem: is refers collectively to all diagnosable mental disorders mild to severe depression, anxiety and stress or having one of the three's (9).
1. Depression: Respondent who score below 10 on the depression, anxiety, and stress scale-21 Items (DASS-21) were considered as having no depression and those who score 10 and above were considered as having depression (10,11).
2. Anxiety: Respondent who score below 7 on the depression, anxiety, and stress scale-21 Items (DASS-21) were considered as having no anxiety and those who score 7 and above were considered as having anxiety (10,11).
3. Stress: Respondent who score below 11 on the depression, anxiety, and stress scale-21 Items (DASS-21) were considered as having no stress and those who score 11 and above were considered as having stress (10,11).

2.3. Sample size calculation

Sample size was computed using single population proportion formula using the first objective (to determine the prevalence of psychological problem in response to COVID-19 pandemic) with the following assumptions (12); 95% confidence interval, 5% margin of error and 10% compensation for possible non-response were assumed. The sample size was determined to be 380.

The sample size was also calculated using second objective (to identify factors associated with psychological problem in response to COVID-19 pandemic) with open Epi info assuming a confidence interval of 95%, margin of error of 5% power 80%. The major factors used were female sex, education above secondary level and family size ≥3.

Since the calculated sample size for the second objective is 889 which is greater than the sample size calculated using

Table 1 Socio-demographic characteristic in response to COVID-19

Variable (n=889)	Frequency	Percent
Sex		
Male	347	39.0
Female	542	61.0
Age		
18-27	228	25.6
28-37	305	34.3
38-47	196	22.0
≥ 48	160	18.0
Marital status		
Single	128	14.4
Married	673	75.7
Divorce	46	5.2
Widowed	42	4.7
Religion		
Muslim	460	51.7
Orthodox	231	26.0
Protestant	171	19.3
Other	26	2.9
Education		
Illiterate	84	9.4
Grade 1-8	172	19.3
Grade 9-12	274	30.8
Above 12	359	40.4
Occupation		
Unemployed	103	11.6
Government employed	202	22.7
Private work	317	35.7
Student	46	5.2
House wife	205	23.1
Other	16	1.8
Household head		
Husband	758	85.3
Wife	131	14.7
Family size		
<5	652	73.3
≥5	237	26.7

first objective that is 380. Therefore, 889 was taken as a final sample size of the study.

Out of eight kebeles in the town, four kebeles were randomly selected. Sample size was distributed to the selected kebeles via probability proportional to size allocation. Finally, simple random sampling method was used to approach study participants.

2.4. Statistical analysis

Data was entered into Epi-info version 7 and analyzed using SPSS version 25. Both bivariable multivariable logistic regression analysis were used to identify the association of independent variables with the outcome variable. All variable that has P-value 0.25 in bivariable logistic regression were taken in to final model for multivariable logistic regression analysis to control the possible effect of confounders and identify predictors of the outcome variable.

Odds ratio with their 95% confidence intervals were calculated and statistical significance was affirmed if P<0.05. Hosmer-Lemeshow statistic had a chi-squared value of 4.262 and a significance of 0.725 indicating that the model is fit. Multi-collinearity was checked for interaction between independent variables by VIF (variance inflation factor) which showed a value of less than 5.

3. Results

3.1. Socio-demographic characteristic of participants

A total of 889 respondents participated in this study with 100% response rate. More than half of the respondents were female (542 (61.0%)). More than one-third were within the age group 28-37 (305 (34.3%)) with mean of 36.5 (±11.9) and the range was 18-88 years. Regarding marital status, more than three-fourth were married (673 (75.7%)). Pertaining to educational level, 359 (40.4%) were above 12th grade and 317 (35.7%) were working in private institutions. Regarding to respondents' income, 370 (41.6%) had income of ≥5500 Ethiopian birr (ETB) (approximately 120 USD). 758 (85.3%) household head were husband and majority of the respon-

Table 2 Knowledge, attitude and practices in response to COVID-19

Variable (n=889)	Frequency	Percent
Knowledge		
Poor knowledgeable	409	46.0
Knowledgeable	480	54.0
Attitude		
Negative attitude	438	49.3
Positive attitude	451	50.7
Practice		
Poor practice	467	52.5
Good practice	422	47.5
Ever heard about COVID-19		
Yes	883	99.3
No	6	0.7
Knowledge about COVID-19		
Not know anything	32	3.6
A virus cause disease	791	89.0
Government program	47	5.3
TV/Radio campaign	19	2.1
Kind of information they have		
How to protect them	33	3.7
Symptoms of disease	18	2.0
Mode of transmission	23	2.6
What they do if have symptoms	14	1.6
All the above information	750	84.4
Source of information		
Facebook only	87	9.8
Telegram only	33	3.7
TV/Radio	549	61.8
Health worker telegram & facebook	91	10.2
Friend & family	129	14.5
Mode of spread		
Direct contact	29	3.3
Droplets	67	7.5
Contaminated object	8	0.9
All the above	781	87.9
Perception of COVID-19		
Very dangerous	772	86.8
More/less dangerous	82	9.2
Not dangerous	35	3.9
Action taken if you/family have symptom of COVID-19		
Call to 8335/952	308	34.6
Stay quarantine	147	16.5
Go to hospital	389	43.8
Look for traditional medicine	45	5.1

dents (652 (73.3%)) had a family size less than five (Table 1).

3.2. Knowledge, attitude, and practice of COVID-19 prevention methods

More than half of the respondents knew about COVID-19 pandemic infection prevention methods (480 (54.0%)). Almost all the respondents (883 (99.3%)) had heard about newly emerged COVID-19, and 791 (89%) knew the cause of disease to be a virus. 750 (84.4%) had information about disease symptoms, mode of transmission and how they protect themselves. The major sources of information for respondents were TV and radio (549 (61.8%)).

Regarding attitude, 451 (50.7%) had positive attitude. Majority of respondents perceived that COVID-19 is very danger-

ous disease (772 (87.9%)). Regarding their practice, nearly half of respondents had good practice about COVID-19 pandemic infection prevention methods (422 (47.5%)) such as frequently washing hands, use of sanitizer after contact of objects, keeping social distancing and boosting immunity. Nearly half of respondents (389 (43.8%)) and one third of respondents (308 (34.6%)) visited hospital and made call to 8335/952 if they had COVID-19 symptoms respectively (Table 2).

3.3. Health status of respondents

More than three-fourth of the respondents had no history of COVID-19 symptoms (701 (78.9%)) and 729 (82.0%) had no history of contact with person who came from abroad within the past two week prior to the survey. 818 (92%) respon-

Table 3   Comparison of the quality of prognostic models

Variable (n=889)	Frequency	Percent
Having of COVID-19 symptom past two weeks		
Yes	188	21.1
No	701	78.9
Contact history with person come abroad past two weeks		
Yes	160	18.0
No	729	82.0
Have mental health follow up		
Yes	71	8.0
No	818	92.0
Have Known medical problem		
Yes	101	11.4
No	788	88.6
Quarantine history you/your family		
Yes	77	8.7
No	812	91.3
Had history of COVID-19 test positive		
Yes	27	3.0
No	862	97.0

dents had no history of mental health follow-up, 862 (97.0%) respondents no medical problem, 788 (88.6%) respondents had no history of quarantine and 812 (91.3%) respondents had no history of positive test for COVID-19. (Table 3)

3.4. Socio-demographic characteristics and psychological problem of participants

Females had more psychological problems than males and those who were within the age group 28-37 years had more psychological problems than the rest age groups. Pertaining to marital status, married respondents had more psychological problems in response to COVID-19 pandemic infection than the other categories. (Table 4)

3.5. Prevalence of psychological problem of the respondents

The prevalence of psychological problem was 96.6% (95% Cl: 95.9,98.1). The overall prevalence of depression, and anxiety were 30% and 43.5% respectively.

3.6. Factors associated with psychological problems

The bivariable logistic regression analysis showed that psychological problem in response to COVID-19 pandemic infection had association (P<0.25) with action taken if you/family have symptom of COVID-19, having known medical problem and having of COVID-19 symptoms in the past two weeks before the survey. In multivariable analysis, the variables significantly associated with psychological problem in response to COVID-19 pandemic infections were; having had COVID-19 symptoms in the past two weeks before the survey & known medical problems.

The odds of developing psychological problems in response to COVID-19 pandemic infection among individuals who had COVID-19 symptoms in the past two weeks were 64% less likely than those who had no COVID-19 symptoms in the past two weeks (AOR=0.34; 95% Cl: 0.15,0.77).

The odds of developing psychological problems in response to COVID-19 pandemic infection among individuals with known medical problems were 72% less likely than those with no medical problems (AOR=0.28; 95% Cl: 0.13,0.59) (Table 5).

4. Discussion

In the current study, the prevalence of psychological problem in response to COVID-19 pandemic infection was 96.6% (95% Cl: 95.9,98.1). The respondents had mild to moderate depression, anxiety and stress. This finding was very high and it indicates the evidence to make intervention measurement on psychological problem in response to COVID-19 pandemic infection to the community.

The prevalence of this study was higher than the study done in Addis Ababa (66.4%) and Gedio Zone, Dilla (44.4%) (12,16). The discrepancy of this finding may be due to study time difference, socioeconomic background, data collected methods and the psychological problem classification difference. They used only those having moderate to severe classification while this paper included mild classification.

The present study found that the odds of developing psychological problems in response to COVID-19 pandemic infection among individuals who had COVID-19 symptoms in the past two weeks were 64% less likely than those who had no COVID-19 symptoms in the past two weeks.

This finding contradicts with the finding in Addis Ababa (12). The difference may be due to the study time. This implies at the time of previous study the pandemic was newly emerged to Ethiopia, so that people got panic. Now a day's people are accustomed to this disease and adjusting themselves to live with the disease. On the other hand it indicates that those people once they developed the disease symptom and acquired the infection their frustrations related to COVID-19

Table 4 Socio-demographic characteristics and psychological problem in response to COVID-19

Variable (n=889)	Psychological problem (n (%))	
	Yes	No
Sex		
Male	336 (39.1)	11 (36.7)
Female	523 (60.9)	19 (63.3)
Age		
18-27	224 (26.1)	4 (13.3)
28-37	298 (34.7)	7 (23.3)
38-47	185 (21.5)	11 (36.7)
≥48	152 (17.7)	8 (26.7)
Marital status		
Single	123 (14.3)	5 (16.7)
Married	652 (75.9)	21 (70.0)
Divorced	43 (5.0)	3 (10.0)
Widowed	41 (4.8)	1 (3.3)
Religions		
Muslim	446 (51.9)	14 (46.7)
Orthodox	221 (25.7)	10 (33.3)
Protestant	167 (19.4)	5 (16.7)
Other	25 (2.9)	1 (3.3)
Education		
Illiterate	83 (9.7)	1 (3.3)
Grade 1-8	161 (18.7)	11 (36.7)
Grade 9-12	269 (31.3)	5 (16.7)
Above 12	346 (40.3)	13 (43.3)
Occupation		
Unemployed	99 (11.5)	4 (13.3)
Government employed	190 (22.1)	12 (40.0)
Private work	310 (36.1)	7 (23.3)
Student	46 (5.4)	0 (0.0)
House wife	200 (23.3)	5 (16.7)
Other	14 (1.6)	2 (6.7)
Income		
No income	62 (7.2)	3 (10.0)
900-3000 ETB	214 (24.9)	9 (30.0)
3001-5500 ETB	222 (25.8)	9 (30.0)
>5500 ETB	361 (42.0)	9 (30.0)
House hold head		
Husband	732 (85.2)	26 (86.7)
Wife	127 (14.8)	4 (13.3)
Family size		
<5 persons	628 (73.1)	24 (80.0)
≥5 persons	231 (26.9)	6 (20.0)
Knowledge		
Not knowledgeable	394 (45.9)	15 (50.0)
Knowledgeable	465 (54.1)	15 (50.0)
Attitude		
Negative attitude	423 (49.2)	15 (50.0)
Positive attitude	436 (50.8)	15 (50.0)
Practice		
Poor practice	456 (53.1)	11 (36.7)
Good practice	403 (46.9)	19 (63.3)
ETB: Ethiopian birr		

may reduce.

The present study revealed that the odds of developing psychological problems in response to COVID-19 pandemic infection among individuals with known medical problems were 72% less likely than those with no medical problems.

This study also contradicts with the study done in Gondar (8). The reason may be as the time goes by their aware-ness increased; implementing the national COVID-19 vaccination programs and mass media awareness creation campaign gives more emphasis to this population to take preventive measures more than that population who do not have medical problem.

This implies that those people who had known medical problem are given attention to COVID-19 pandemic infection pre-

Table 5 Factors associated with psychological problem in response to COVID-19

Variable	Psychological problems		COR (95% Cl)	P-value	AOR (95% Cl)	P- value
	Yes	No				
Action taken if you/family have symptom of COVID-19						
Call to 8335/952	295 (34.3)	13 (43.3)	2.21 (0.689,7.11)	0.18	2.52 (0.75,8.46)	0.14
Stay quarantine	144 (16.8)	3 (10.0)	4.68 (1.01,21.77)*	0.049	3.4 (0.70,16.43)	0.13
Go to hospital	379 (44.1)	10 (33.3)	3.69 (1.11,12.32)*	0.033	2.77 (0.79,9.66)	0.11
Look for traditional medicine	41 (4.8)	4 (13.3)	1		1	
Having of COVID-19 symptom past two weeks						
Yes	173 (20.1)	15 (50.0)	0.25 (0.12,0.53)*	0.001	0.34 (0.15,0.77)**	0.01
No	686 (79.9)	15 (50.0)	1		1	
Have known medical problem						
Yes	92 (10.7)	9 (30.0)	0.28 (0.12,0.63)*	0.002	0.28 (0.13,0.59)**	0.001
No	767 (89.3)	21 (70.0)	1		1	

*: P-value<0.25; * *: Statistically significant association at P-value< 0.05; COR: Crude odds ratio

ventive behavior during their day today activists to keep their health status well by avoiding all the risky behaviors.

5. Conclusion

About 96.6% of respondents had psychological problem in response to COVID-19 pandemic infection. The study demonstrated having had COVID-19 symptoms in the past two weeks before the survey and known medical problem were factors associated with psychological problems in response to COVID-19 pandemic infection.

It needs immediate action to alleviate psychological problem crisis. Appropriate health information about prevention method of psychological problems to the general population and provide mental health services such as counseling and treatment for those with the problems is pivotal.

6. Declarations

6.1. Acknowledgement

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6.2. Authors' contribution

The authors meet the four criteria for authorship based on the recommendations of the International Committee of Medical Journal Editors (ICMJE).

6.3. Conflict of interest

The authors declare that they have no competing interests.

6.4. Funding

None.

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