

The Impact of the COVID-19 Epidemic on Mental Health Among Residents of Assela Town

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Background: COVID-19 has diversified problems such as physical health, mental health, psychosocial and economic impact on people all over the world. A report from Johns Hopkins University revealed that many millions of people have been infected and millions of them lost their lives due to the virus.

Purpose: To assess the implementation of COVID-19 prevention mechanisms and to describe the impact of COVID-19 on people's mental health in Asella town.

Methods: Descriptive survey research design was used. Two hundred and eleven randomly selected participants involved for the study. Data gathered by using PHQ-9 depressive symptom and STAI-s anxiety scales. Data were analyzed using descriptive statistics, independent sample *t*-test and one-way ANOVA with post hoc comparison.

Results: The finding revealed that 14 and 5.2% of the participants reported sometimes and occasionally wearing a mask regardless of the presence or absence of symptom. About 6.2% and 10.9% of the participants reported occasionally and never for the item avoidance of sharing utensils during meals. Half (49.3%) and 37% of the participants reported somewhat worried and very worried, respectively for concern about other family members getting COVID-19 infection. About 8.5% ($M=22.64$, $SD=1.93$) and 10 (4.7%, $M=16$, $SD=1.42$) of the participants qualify in the criteria of severe depressive symptoms and moderate-severe depressive symptoms, respectively. Conversely, 11.84% ($M=52.76$, $SD=3.9$) qualify in the criterion for severe anxiety. The independent sample *t*-test result revealed that there was statistically significant difference among males and females for anxiety mean score. However, there was no statistically significant difference among males and females for depressive symptom mean score. Regarding mental health across different age categories, the ANOVA with post hoc analysis revealed that there was statistically significant difference for state anxiety mean score among younger and older participants but not for depressive symptom mean score.

Conclusion: Generally, there is gap in the prevention of COVID-19. In addition, there is an elevated level of depressive and anxiety symptoms during the outbreak of COVID-19 that needs urgent psychological intervention.

Keywords: COVID-19, depression, mental health, state anxiety and prevention mechanisms

Introduction

At present, coronavirus (COVID-19) has created diversified social crises in many parts of the world. The virus has resulted for the death of many thousands of people within in short period at a global level. For instance, WHO reported that more than 22 million people are infected by the virus at global level within nine months.¹ The same report also confirmed that eighteen thousand individuals were infected by the virus and about one thousand individuals lost their lives in the African context.

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In addition to the death of people, COVID-19 resulted in economic, social, psychological, and health complications. As a result of the epidemic and related social restrictions, people may experience different psychological problems. According to Shigemura et al, the multidimensional impact of coronavirus can be more or less predicted and will likely include extreme fear and uncertainty, lowered perceived health, negative societal behaviors driven by fear and distorted perceptions of risk.² The epidemic can also result distress reactions (insomnia, anger, extreme fear of illness even in those not exposed) and health risk behaviors (increased use of alcohol and tobacco, social isolation); as well as mental health disorders (PTSD, anxiety disorders, depression).² Research conducted in China among 605 of the general population through online questionnaires from February 6–9, 2020, revealed that 6.33 and 17.17% of the respondents experienced anxiety and depression, respectively.³ A systematic study that determined the prevalence of anxiety during COVID-19 outbreak reported that the prevalence of anxiety is equal to 25%.⁴ Regarding the prevalence of depression during the COVID-19 outbreak, 12 studies were included in the meta-analysis, with prevalence rates of depression ranging from 7.45% to 48.3%. The pooled prevalence of depression was 25%.⁵ These two community-based studies also revealed that the prevalence of anxiety and depression increased during the COVID-19 outbreak.^{4,5}

In addition, in a study on the ongoing impact of COVID-19 on mental health of 5,000 Chinese citizens, 21.5% met the criteria for PTSD symptoms,⁶ which resembles percentages of PTSD (28.9%) and depression (31.2%) symptoms experienced by polled quarantined citizens during SARS outbreak in 2003.⁷ Another study among 2091 Chinese inhabitants one month after the COVID-19 outbreak the prevalence of PTSD was 4.6%, while the prevalence in high-risk public, eg in Chinese provinces with higher numbers of COVID-19 cases, was 18.4%.⁸ In a study among 775 adults in the United States 55% of them admitted that COVID-19 has had deleterious effects on their mental health well-being and 71% were worried about the potential negative impact of isolation on their mental health.⁹

There are many COVID-19-related conditions that deteriorate the mental health status of individuals with and without the problem. The anticipated consequences of quarantine and associated social and physical distancing measures are themselves key risk factors for mental health issues.¹⁰ These psychological impacts include suicide and

self-harm, alcohol and substance misuse, gambling, domestic and child abuse, and psychosocial risks (such as social disconnection, financial stress, bereavement, loss, unemployment, homelessness, and relationship breakdown).¹⁰ Reports from various parts of the world revealed that people committed suicide as a result of COVID-19. For instance, a old man hanged himself in a New York City hospital after testing positive for COVID-19.¹¹ A 19-year-old waitress in England died in a hospital after a suicide attempt because of fears of the “mental health impacts” of isolation.¹² A man in Illinois who feared that he and his girlfriend contracted the COVID-19 fatally shot his girlfriend and then killed himself.¹³ A man in Bangladeshi killed himself because he and people in his village thought that he was infected with COVID-19 symptoms.¹⁴ A study revealed that childhood maltreatments can also increase the depression level and associated suicidal rate among male individuals.¹⁵

A major adverse consequence of the COVID-19 pandemic is likely to be increased social isolation and loneliness which are strongly associated with anxiety, depression, self-harm, and suicide attempts.¹⁰ Tracking loneliness and intervening early are important priorities. Crucially, reducing sustained feelings of loneliness and promoting belongingness are candidate mechanisms to protect against suicide, self-harm, and emotional disturbance.

Like in many developing countries, in Ethiopia there are numerous sophisticated social, economic, and health problems. Poor infrastructure in the health sector, poor means of transportation, a huge number of unemployment, and the like are the commonly observed problems. All these and other related factors may create fertile ground for the spread of COVID-19.

In addition to the fear of being infected by the virus, being restricted at home and separation centers may affect peoples’ normal mental health status. Currently, even at the global level of the diversified nature of the virus, its impact and related intervention mechanisms are not well investigated. At present, the most commonly recommended prevention mechanism are washing hands using water and soap, clean hands with alcohol and sanitizer after touching contaminated objects, covering noses and mouth with masks, and social distancing. However, these prevention mechanisms need to be properly implemented in order to bring the desired outcome in the prevention of COVID-19. Nevertheless, the numbers of people who became infected and died due to COVID-19

increased radically in Ethiopia especially in the study area. This could be evidence for observed reluctant behavior in society.

The other conditions that affect people's well-being are disseminated information via mass media, being in lockdown for an extended time, being in quarantine at separation centers, and uncertainty about the future, death of a family member and the like. All these conditions can aggravate psychosocial and mental health problems in society.

In Ethiopia, including the study area, the impact of COVID-19 on mental health is not well investigated. Consequently, it is difficult to know the extent of the problem in the study area. At this point this study investigated the prevention mechanisms used, participants' concerns for COVID-19 epidemic and the impact of the coronavirus epidemic on people's mental health status specifically depression and anxiety in Asella town. The study also investigated which groups of the population are more vulnerable to mental health problems.

The current study answered the following questions:

- What are the COVID-19 prevention mechanisms that participants' used in Asella town?
- What are the participants' concerns for COVID-19 epidemic in Asella town?
- What is the level of depressive symptoms and anxiety among the study participants in Asella town during the COVID-19 epidemic?
- Is there an association between participants' depressive symptoms and anxiety levels with demographic characteristics during the COVID-19 epidemic?

Methods

Design, Site and Population of the Study

For this study a cross-sectional design was used. The research was conducted in Asella town which is located about 160 km from the capital city Addis Ababa in a southeastern direction in Ethiopia. Asella is located in a very impressive geographical location adjacent with mountain Chillallo in the east and with the Great East Africa Rift Valley and lake Ziway in the west. Regarding population and sampling technique, there are eight kebeles (relatively lowest administrative level in Ethiopia) in Asella Town. From these eight kebeles, three kebeles were selected using simple random sampling technique. From the first two kebeles a total of 140 individuals, 70 from each and 71 individuals from the remaining kebele;

altogether 211 participants were identified by using a simple random sampling technique, specifically a lottery method from the residential list available in each kebele. All the participants were male or female adults whose age greater than or equal to 18 years old that represent each households in the kebele list.

Instruments Used, Procedure, and Data Analysis

The instruments include demographic questionnaire, precautionary measures for the current COVID-19, PHQ-9 depressive symptom scale and STAI-S anxiety inventory. In the first part, seven items measure the demographic characteristics the study participants, such as age, sex, marital status, educational status and the like. The second part assesses the precautionary measures for the current COVID-19. There are seven items that measure precaution. The third part assesses participants' concern during the epidemic. In this section there are three items. The fourth part contains the depression measuring scale, PHQ-9, which contains nine items based on the nine depressive symptoms of DSM IV.¹⁶ Regarding the response categories of PHQ-9, each item is scored from 0 (not at all), 1 (several days), 2 (more than half the days) and 3 (nearly every day). In relation to scoring and interpretation of the data, the scale has a minimum score of 0 and maximum of 27. Scores from 0–4 and 5–9 indicate no depression at all and mild depression respectively. Scores from 10–14 and 15–19 indicate moderate depression, moderately severe depression respectively. Scores from 20–27 correspond to severe depression.⁹ For the current study the same cutoff points were used. PHQ-9 has high reliability, that is, Cronbach's α coefficient was 0.86 and the test-retest reliability was 0.95. The correlation coefficient of the nine items with the total score of the scale was 0.59–0.78.¹⁶ The psychometric property of PHQ-9 when studied and translated into many languages was found to be strong. For instance, the psychometric property of PHQ-9 in Ethiopia showed good internal consistency (Cronbach's $\alpha=0.85$) and test retest reliability (intraclass correlation coefficient=0.92 among 926 adults (≥ 18 years of age) attending outpatient units at Saint Paul General Specialized Hospital in Addis Ababa. This can be an indicator for the suitability of the instrument for Ethiopian participants and cultural context.

The State-Trait Anxiety Inventory (STAI-S)¹⁷ was used. STAI-S contains 20 items. The scale is a self-

report inventory with appropriate reliability and cultural suitability for Ethiopian participants comprising, “I feel calm ‘not at all’, ‘somewhat’, ‘moderately so’, ‘very much so’”. State-anxiety inventory has very good reliability coefficient for Ethiopian participants. For instance, Enishaw in his study on gender-based violence and mental health reported 0.820 for state anxiety (STAI-S) inventory.¹⁸ This scale was used for the current study because of its sound psychometric property and suitability for cultural diverse participants in developed, as well as developing, countries including in Ethiopia. For instance, Mulatu in his study, the validation of Amharic version of STAI, high internal consistency coefficients were found for STAI-S ($\alpha=0.87$).

Concerning procedure of data collection, participants were contacted via telephone to get their willingness to participate and to design a schedule for the actual data collection. Finally, based on the outlined schedule the data collection was conducted via telephone. For some participants’ data were collected using the internet. The data collection took 15–20 min on average.

Data were analyzed by using SPSS version 20. Descriptive statistics such as percentage mean and standard deviation was used to analyze data related to demographic characteristics, COVID-19 prevention, concern in relation to COVID-19, prevalence rate of depression and anxiety. Independent sample *t*-test was used to check whether there was statistically significant difference in depressive symptoms and anxiety between male and female participants. One-way ANOVA was used to prove whether there was statistically significant difference in depressive symptoms and anxiety across age categories of the study participants.

Ethical Consideration

Considering the sensitivity of the COVID-19 epidemic and its consequences, all the possible care was taken into consideration throughout this research work. Some of these ethical considerations include:

- To avoid transmission of the virus, the data collection was conducted via telephone.
- The intentions of the study were explicitly informed before the data collection processes.
- They were also informed about the full confidentiality of the information they provide.
- They were informed of their right to withdraw at any stage of the data collection procedure if they feel uncomfortable about the process.
- Only volunteer participants were involved in the study. Accordingly, before the data collection process, they approved their agreement to participate in the study verbally during a telephone conversation.
- Ethical approval was obtained from the ethical review committee of the College of Education and Behavioral Science, Arsi University.
- Though the data were collected by telephone, the researchers told the participants to give their informed consent in written form. Accordingly the participants confirmed their agreement in written form and signed to participate in the study.
- All the ethical conditions of Declaration of Helsinki were taken into consideration throughout this research process. Accordingly, there was no violation of the articles and principles postulated in the declaration.

Results

As indicated in Table 1, the majority of the respondents (63.6%) were between 25 and 44 years old. Twenty-two point three percent and 8.5% were between 45 and 54 years old and 55 and above years old, respectively. In addition, almost the majority of the participants were male and married. In addition, more than half of the participants have one-to-three children. Regarding participants’ occupation more than half 58.8%, 21.8%, and 17.1% were government employees, traders, and private business owners, respectively.

Concerning participants’ educational level, 28.85%, 21.35%, and 20.4% (illiterate elementary education, and secondary education all together), graduated at degree level, and MA and above respectively. Because of the lockdown effect of COVID-19 and accessibility of internet service a significant number of university instructors participated in the study. The study also incorporated a significant number of university instructors who have an MA degree and above.

The impact of COVID-19 on mental health can be determined based on the previous mental health status of the study participants. Accordingly, participants asked about their previous mental health status and the finding revealed that no participant had severe mental health problems. However, 7.1% of the participants reported that

Table 1 Sociodemographic Characteristics of the Study Participants (n=211)

No.	Demographic Characteristics		n	%
1	Sex	Male	148	70.1
		Female	63	29.9
2	Age	18–24	12	5.7
		25–34	67	31.8
		35–44	67	31.8
		45–54	47	22.3
		55±	18	8.5
3	Marital status	Never married	59	28
		Married	146	69.2
		Divorced	4	2
		Separated	1	0.5
		Widowed	1	0.5
4	Number of children	No children	44	20.9
		1–3 children	128	60.7
		4–6 children	34	16.1
		>6 children	5	2.4
5	Occupation	Housewife	5	2.4
		Trader	46	21.8
		Government employee	124	58.8
		Private business owner	36	17.1
		Others	0	0
6	Educational level	Illiterate	18	8.5
		Primary education	14	6.6
		Secondary education	29	13.7
		Vocational training	23	10.9
		Diploma	39	18.5
		Degree	45	21.3
		Master's degree and above	43	20.4
7	Have you experienced any mental health problem before?	Never	196	92.9
		To some extent	15	7.1
		Yes, I have experienced severely	0	0

they have mental health problems to some extent and the remaining 92.9% reported never experienced it.

Implementation of COVID-19 Prevention Mechanisms

There are various COVID-19 prevention mechanisms recommended by health professionals. Participants of the current study asked whether they properly used these prevention mechanisms or not. As indicated in Table 2, 15.2 and 8.1% of the participants wash their hands using sanitizer after touching objects sometimes and occasionally, respectively. However, 44.1 and 32.7% of the participants' wash their hands always and most of the time, respectively. This implies that there is still some reluctance in society to use these prevention mechanisms in Asella town during the specified time.

Concerning wearing a mask, regardless of the presence or absence of symptoms, almost the majority of the participants use this prevention mechanism either always or most of the time. Conversely, 14.2%, 5.2%, and 1.4% of the participants use a mask sometimes, occasionally, and never use it at all, respectively. Regarding washing hands immediately after coughing, sneezing, or rubbing nose, almost one quarter of the participants always or most of the time wash their hands. On the contrary, 15.2 and 10.4% occasionally and never wash their hands, respectively.

COVID-19 can also be transmitted through sharing utensils during meals. However, a significant number of participants 10.9 and 6.2% of the participants reported that they never and occasionally avoid sharing utensils during meals, respectively. These data imply that sharing utensils is one mechanism of transmitting the virus, especially among family members.

Participants were also asked about their main source of health information about COVID-19 and 64.5%, 22.7%, 8.1%, and 4.7% reported TV, internet, other sources like family member, respectively. The finding implies there is less shared information about COVID-19 among family members. In addition, information via TV is more accessible for the community than information through radio in relation to COVID-19. Regarding participants' satisfaction about obtained information in relation to COVID-19, 7.6%, 4.7%, and 2.8% reported difficult to decide, not very satisfied, and not satisfied at all, respectively. However, the majority of the participants reported that they were very satisfied and somewhat satisfied.

Table 2 Participants Implementation of COVID-19 Prevention Mechanisms

Item	Always		Most of the Time		Sometimes		Occasionally		Never		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
1 Washing hands/ using sanitizer after touching objects.	93	44.1	69	32.7	32	15.2	17	8.1	–	–	211	100
2 Wearing a mask regardless of the presence or absence of symptoms	84	39.8	83	39.3	30	14.2	11	5.2	3	1.4	211	100
3 Covering mouth when coughing and sneezing	129	61.1	50	23.7	16	7.6	15	7.1	1	0.5	211	100
4 Washing hands immediately after coughing sneezing, or rubbing nose	50	23.7	57	27.0	50	23.7	32	15.2	22	10.4	211	100
5 Avoiding sharing utensils during meals	119	56.4	37	17.5	19	9.0	13	6.2	23	10.9	211	100

Participants' Concerns for COVID-19 Epidemic

An individual's concern for contracting the virus can affect his/her mental health state. For this purpose, participants were asked about the likelihood of contracting COVID-19 during the current outbreak. As indicated in Figure 1, 40.8 and 20.4% responded somewhat likely and very likely to contract COVID-19 during the current outbreak, respectively. Conversely, 13.3 and 5.7% of the participants' said not very likely and not likely at all, respectively. However, one-fifth of the participants reported they face difficulty in deciding on this issue. The finding implies that more than half of the participants were not sure or confident enough about their prevention mechanisms. This can be due to multiple routes of transmission of the virus such as via contaminated objects, close contact with other people. Such uncertainty can increase the level of mental health problems.

Participants were also asked the likelihood of surviving if infected with COVID-19 during the current outbreak. As

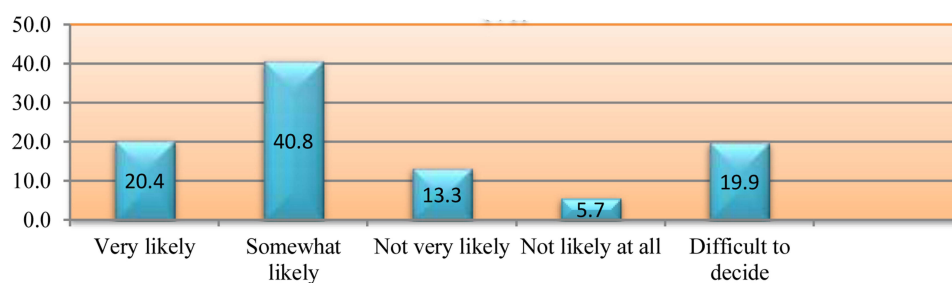
revealed in Figure 2, 9.5 and 1.9% of the participants reported not very likely and not likely at all, respectively. However, almost half of the participants and one fifth of the participants reported somewhat likely and very likely to survive if infected with COVID-19.

The other question that arose was participants' concerns for their family members getting COVID-19 infection. As indicated in Figure 3, half of the participants and more than one third of them reported somewhat worried and very worried respectively. These results imply that the fear of infection with COVID-19 can deteriorate mental health problems because of the individual concern for him/herself, and for family members as well as other relatives.

Extent of Mental Health Problems During the COVID-19 Outbreak

Depressive Symptoms

As indicated in Table 3, out of the total 211 participants 17 (8.5%, $M=22.64$, $SD=1.93$) and 10 (4.7%, $M=16$, $SD=1.42$) qualify in the criteria for severe depressive symptoms and moderate-severe depressive symptoms, respectively.

**Figure 1** Likelihood of contracting COVID-19.

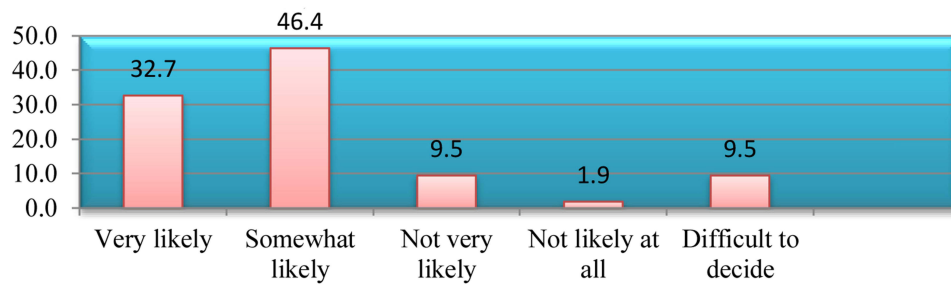


Figure 2 Likelihood of surviving if infected with COVID-19.

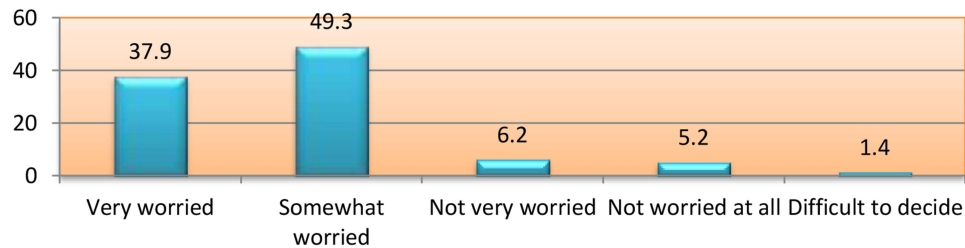


Figure 3 Participants concern about other family members getting COVID-19 infection.

Regarding depressive symptoms across participants' demographic characteristics, the result revealed that out of the total 148 male participants 9.4% (M=22.6, SD=2.09), 4.7% (M=16.28, SD=1.38), 9.4% (M=11.78, SD=1.36) and 26% (M=6.9, SD=1.39) qualify for the criteria for severe depressive, moderate severe, moderate depression and mild depressive symptoms respectively. On the contrary, half of the participants did not qualify in the criteria for no depression at all. However, out of the total 63 female participants 4.76% (M=22.6, SD=1.15), 4.76% (M=17.3, SD=1.5), 6.34% (M=11.75, SD=1.25) and 20.6% (M=6.9, SD=1.25) met the criteria for severe depression, moderate-severe depressive, moderate depressive and mild depressive symptoms respectively.

Anxiety

In addition to depressive symptoms, the impact of the COVID-19 epidemic on participants' anxiety level was analyzed and presented. The interpretation of the finding implies that the higher the score indicates the severity of the level of anxiety. The cutoff point was determined by calculating the mean and standard deviation from the total score that is 39.59 (SD=7.74) for state anxiety. To determine the upper and lower boundaries the standard deviation was added and subtracted from the mean score, respectively. Therefore, 32 and 47.34 become the lower and upper boundaries respectively. Based on these cutoff points, severe, moderate, and lower levels of anxiety were determined.

As indicated in Table 4, 11.84% (M=52.76, SD=3.9) qualify in the criteria for high anxiety level. The majority

Table 3 Depressive Symptom Among Participants During COVID-19 Outbreak

No	Cutoff Point	All Participants Together		Male		Female	
		n (%)	M (SD)	n (%)	M (SD)	n (%)	M (SD)
1	0–4=no depression at all	114 (54)	1.9 (1.3)	74 (50)	1.79 (1.29)	40 (63.49)	2.07 (1.3)
2	5–9=mild depression	52 (24)	6.9 (1.3)	39 (26)	6.9 (1.39)	13 (20.63)	6.9 (1.25)
3	10–14=moderate depression	18 (8.5)	11.8 (1.3)	14 (9.4)	11.78 (1.36)	4 (6.34)	11.75 (1.25)
4	15–19=moderate-severe depression	10 (4.7)	16 (1.42)	7 (4.7)	16.28 (1.38)	3 (4.76)	17.3 (1.5)
5	20–27=severe depression	17 (8.5)	22.64 (1.93)	14 (9.4)	22.6 (2.09)	3 (4.76)	22.6 (1.15)

Table 4 Level of Anxiety Among the Study Participants

State Anxiety	Cut-off Point	Total Participants		Male		Female	
		n (%)	M (SD)	n (%)	M (SD)	N (%)	M(SD)
STAI-S	≤32	34 (16.11)	27.44 (4.054)	25 (16.89)	27.72 (3.67)	9 (14.28)	26.67 (5.15)
	33 ≤47.34	152 (72.03)	40 (3.9)	109 (73.62)	40.16 (3.7)	43 (68.25)	40.2 (4.4)
	>47.34	25 (11.84)	52.76 (3.9)	14 (9.45)	53 (3.96)	11 (17.46)	52.7 (3.8)

Notes: For STAI-S, >47.34 severe anxiety level, 33≤47.34 moderate anxiety level and ≤32 low anxiety level.

of the participants 72.03% (M=40, SD=3.9) qualify in the criteria for medium anxiety level. In addition, the level of anxiety also computed for male and female. The results revealed that a relatively higher percentage 17.46%, M=52.7, SD=3.8) and 68.25% (M=40.2, SD=4.4) of females qualify for anxiety and moderate anxiety, respectively. From female participants' 9.45%, M=53, SD=3.96) and 73.62% (M=40.16, SD=3.7) qualify for severe anxiety and moderate anxiety, respectively. However, a larger number of female than male participants qualified in the criteria for severe anxiety level.

Is There a Significant Difference in the Mean Depression and Anxiety Scores for Some Demographic Variables? Gender

The other objective of the study was to investigate whether there was statistically significant difference in mean depression and anxiety score across participants' demographic characteristics specifically participants' gender. For this purpose, inferential statistics specifically independent sample *t*-test was employed.

As indicated in Table 5, the independent sample *t*-test result revealed that there was no statistically significant difference among male (M=6.7432, SD=6.7) and female (M=5.42, SD=5.7; $t(209)=1.35$, $p=0.17$) for depressive symptom mean score. The magnitude of the difference in means score was very small (eta squared=0.0047). As presented in Table 5, an independent sample *t*-test was

also conducted to compare the level of anxiety among male and female participants. The result revealed that there was statistically significant difference among male (M=39.22, SD=7.37) and female (M=43.38, SD=10.3; $t(209)=3.3$, $p=0.01$).

Participants' Age and Mental Health Status

In addition, one-way ANOVA with post hoc comparison was computed to check the presence of statistical significant difference in depressive and anxiety mean score across participants' age. Participants' age was grouped in to five sets that are G1 (18–24), G2 (25–34), G3 (35–44), G4 (45–54) and G5 (55+). The depressive and anxiety mean and standard deviation score across the age groups were presented in Table 6. Based on these findings ANOVA with post hoc comparison (Tukey's) was computed.

As shown in Table 7, ANOVA was computed and the result revealed that there was no statistically significant value $p=0.114$ for depressive symptoms across the five age group. However, the ANOVA result revealed that there was statistically significant difference $p=0.016$ for state anxiety at $p<0.05$ across the five age group.

As indicated in Table 8, based on the ANOVA result multiple comparisons results were checked on which age groups the statistically significant result in anxiety mean score originated.

One-way ANOVA between groups was conducted to explore the impact of age on levels of anxiety measured by using STAI. Participants were divided (Group 1=18–24,

Table 5 Independent Sample *t*-test Result for Depression and Anxiety Across Participants' Gender

Variable	Sex	n	Independent Sample <i>t</i> -test				
			Mean	SD	t	Sig. (2-tailed)	df
Depressive symptom	Male	148	6.7432	6.7	1.35	0.176	209
	Female	63	5.42	5.7			
State-anxiety	Male	148	39.22	7.37	3.3	0.01	209
	Female	63	43.38	10.3			

Table 6 Descriptive Statistics Result for Depressive Symptom and State Anxiety Score Across Participants' Age

Descriptive								
Depressive Symptom					Anxiety Mean Score			
	n	Mean	SD	SE	n	Mean	SD	SE
18–24	12	5.6667	5.08712	1.46852	12	34.7500	7.44831	2.15014
25–34	68	7.3971	7.08612	0.85932	68	41.7206	8.35561	1.01327
35–44	67	6.7612	6.52057	0.79661	67	39.4030	8.03413	0.98153
45–54	47	4.2128	4.86753	0.71000	47	45.1702	14.47835	2.11188
55+	17	6.8235	7.56832	1.83559	17	45.6471	14.46522	3.50833
Total	211	6.3412	6.46287	0.44492	211	41.6730	10.75760	0.74058

Group 2=25–34, Group 3=35–44, Group 4=45–54 and Group 5=55+). The result revealed that there was statistically significant difference in mean score for anxiety, mean score among the five age groups at $p < 0.05$ level in STAI scores for the five age groups [$F(4, 206) = 4.03$, $p = 0.004$]. Post hoc comparison using the Tukey's HSD test indicated that the mean score for Group 1 ($M = 34.7$, $SD = 7.44$) was significantly different from Group 4 ($M = 45.17$, $SD = 8.35$) and Group 5 ($M = 45.64$, $SD = 8.35$). In addition, there was statistically significant difference between Group 3 ($M = 39.40$, $SD = 8.03$) and Group 4 ($M = 45.17$, $SD = 8.35$). However, there was no statistical significant difference between other groups.

Discussion

In this part, the main findings of the study were discussed with the existing studies in the area.

Implementation of COVID-19 Prevention Mechanisms

There are various prevention mechanisms recommended by health professionals to overcome the spread of COVID-19. Some of these prevention strategies include, washing hands with water and soap after contacting any contaminated objects and body parts, use of sanitizer, covering

mouth and nose with masks, keeping social distance and the like. These prevention mechanisms seem easy but most preferable methods to prevent the virus. By any means prevention is the most advantageous strategy to tackle a serious health problem like COVID-19 infectious disease. Accordingly, exploring to what extent participants' implement prevention mechanisms is very important to provide feedback for the concerned bodied who are working in the area of the COVID-19 epidemic. One of the challenges in this study was to get previous studies in this area to compare with the current findings.

The first objective of the study was to describe the COVID-19 prevention mechanisms that participants used in Asella town. The result revealed that 44.1 and 32.7% of the participants' wash their hands always and most of the time, respectively. Research from China revealed that 56% of the participants were washing their hands with water and soap, which is relatively higher than the current finding.³ Relatively lower to the current study it was reported that 22% of participants in the study from China wash their hands most of the time.⁴ Conversely, the current study revealed that 15.2 and 8.1% of the participants wash their hands using sanitizer after touching objects sometimes and occasionally, respectively. Almost comparable findings were reported from the study revealing that 10.5%

Table 7 ANOVA Result for Depressive Symptoms and State Anxiety Mean Score Across Participants' Age

ANOVA										
Depressive Symptom						State-anxiety				
	Sum of Squares	df	Mean Square	F	Sig.	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	309.963	4	77.491	1.887	0.114	1763.855	4	440.964	4.030	0.004
Within Groups	8461.468	206	41.075			22538.581	206	109.411		
Total	8771.431	210				24302.436	210			

Note: $p < 0.05$.

Table 8 ANOVA with Post Hoc Multiple Comparison

Multiple Comparisons						
Dependent Variable: State-anxiety Total Tukey's HSD						
(I) Participants Age	(J) Participants Age	Mean Difference (I-J)	SE	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
18-24	25-34	-6.97059	3.27514	0.212	-15.9841	2.0429
	35-44	-4.65299	3.27880	0.616	-13.6765	4.3706
	45-54	-10.42021*	3.38311	0.020	-19.7308	-1.1096
	55+	-10.89706*	3.94379	0.049	-21.7507	-0.0434
25-34	18-24	6.97059	3.27514	0.212	-2.0429	15.9841
	35-44	2.31760	1.80055	0.699	-2.6377	7.2729
	45-54	-3.44962	1.98415	0.413	-8.9102	2.0109
	55+	-3.92647	2.83635	0.638	-11.7324	3.8794
35-44	18-24	4.65299	3.27880	0.616	-4.3706	13.6765
	25-34	-2.31760	1.80055	0.699	-7.2729	2.6377
	45-54	-5.76723*	1.99020	0.034	-11.2444	-0.2900
	55+	-6.24407	2.84058	0.185	-14.0616	1.5735

Note: *The mean difference is significant at the 0.05 level.

sometimes, 8.3% occasionally, 2.7% never wash their hands with soap and water at all.¹⁶ Even though the finding is comparable with other studies, prevention of COVID-19 via hand cleaning by washing with water and soap and use of sanitizer was not properly implemented frequently by all participants around the study area.

Concerning wearing a mask, regardless of the presence or absence of symptoms comprised almost the same proportion of participants, that is (39.8%) and (39.3%) always and most of the time, respectively. However, 14.2%, 5.2%, and 1.4% of the participants use a mask sometimes, occasionally, and never use it at all, respectively. A research study in China on COVID-19 prevention measures relatively higher than the current study, 59.8% the participants reported that they always wear a mask regardless of the presence or absence of symptoms.³

Regarding washing hands immediately after coughing, sneezing, or rubbing nose, almost one quarter of the participants always and most of the time wash their hands. On the contrary, 15.2 and 10.4% occasionally and never wash their hands, respectively. Research revealed that more participants, that is 57.4%, always cover their mouth when coughing and sneezing, 41% always wash their hands immediately after coughing, sneezing, or rubbing nose.³

COVID-19 can also be transmitted by sharing utensils during meals. However, a significant number of

participants 10.9 and 6.2% reported that they never and occasionally avoid sharing utensils during meals, respectively. These data imply that sharing utensils is one mechanism of transmitting the virus, especially among family members. Even though there is shortage of research study to compare and contrast with findings of the current study, reluctant behavior is clearly observed in Ethiopia in general and in the study area in particular. Important evidence for this is that the number of dead and people infected with COVID-19 increases drastically day to day in the country. The prevention mechanisms used are not at a level to control the epidemic in the country, especially in major towns including in the study area.

Participants were also asked about their main source of health information about COVID-19 and 64.5%, 22.7%, 8.1%, and 4.7% reported TV, the internet, other sources like a family member, respectively. The study revealed that more than half of the participants and about one fifth of them in the study area reported that their main source of information about COVID-19 was television and the internet. This is may be because the study was conducted in an urban center in Asella town. The finding may be changed if the study was conducted in a rural area. The finding implies there is less shared information about COVID-19 among family members. In addition, information via TV is more accessible for the community than information through radio in relation to COVID-19. In contrast to the

current finding a study reported that 93.5% of their participants get information from the internet.¹² The difference may originate from technology accessibility difference specifically the internet in the two study areas. Regarding participants' satisfaction about obtained information in relation to COVID-19, the majority of the participants reported that they were, very satisfied and somewhat satisfied. Similarly, a study reported that the majority of respondents (75.1%) were very satisfied or fairly satisfied with the amount of health information available.

Participants Concern for COVID-19

Participants concern about COVID-19 and associated states can determine their overall health condition, specifically their mental health status. Accordingly, participants were asked about condition that could be their major concern in relation to COVID-19 in the study area. The first question asked, what was the likelihood of contracting COVID-19 during the current outbreak? The result revealed that 60% of the participants reported somewhat likely and very likely for to contract COVID-19 during the current outbreak, respectively. However, another study reported that 40.2% believed that they would be very likely or somewhat likely to be infected by the virus.¹² Alternatively, the current study revealed that 13.3 and 5.7% of the participants' said not very likely and not likely at all, respectively. Relatively higher, that is 46.1% believed the risk of contracting COVID-19 during the current outbreak was unlikely or not likely at all.¹² The finding of the current study implies that a larger number of participants were not psychologically ready to protect themselves from the virus. Consequently, psychological preparation needs to be given by psychologists to enhance the societies' readiness to tackle the problem via mass media and social gatherings.

Regarding the likelihood of surviving if infected with COVID-19, the majority of the participants reported somewhat likely or very likely. On the contrary, about 11.4% reported that not very likely or not likely at all. Almost the same finding was reported from China 11.7%. The study implies that the need for continuous and well-integrated psychological support for the community even for those who were not infected by the virus to scale-up their psychological health and correct perception about themselves.

Relating to participants concern about other family members becoming infected with COVID-19, the majority of the respondents, 86%, said somewhat worried or very worried and 11.4% reported not very worried or not

worried at all. An almost comparable finding was reported by a research study conducted in China about COVID-19 which reported that 75.2% of respondents were very worried or somewhat worried about other family members getting COVID-19. This implies that the family member situation in relation to COVID-19 is a factor that determines the mental health status of an individual.

Participants' Mental Health Status During COVID-19 Outbreak

Depressive Symptoms

The epidemic of COVID-19 has multidimensional impact on people's social, psychological and mental health status. Many thousands of people worldwide lost their lives due to the virus. Such social crises have resulted in deep grief and complicated psychological problems for their families, friends, as well as other people across the world. Many studies have started and are expected to explore the multi-dimensional impact of COVID-19 on human beings. Accordingly, one of the objectives of the current study was to assess and describe the depressive and anxiety symptoms of the study participants during the COVID-19 outbreak by using PHQ-9 depressive symptom scale and state-anxiety scale.

Depression symptoms among participants during the COVID-19 outbreak, out of the total 211 participants were 45.7% that is 17 (8.5%, $M=22.64$, $SD=1.93$), 10 (4.7%, $M=16$, $SD=1.42$) and 18 (8.5%, $M=11.8$, $SD=1.3$), 24% ($M=6.9$, $SD=1.3$) qualified in the criteria for severe depressive symptoms, moderate-severe depressive symptoms and moderate depressive symptoms, respectively. The current finding was somewhat higher than some studies and lower than others in depression level. For example, the finding of the current study was relatively lower than a study that investigated mental health status of general adult population in Bangladesh during the COVID-19 pandemic. The study reported that more than half (57.9%) of the respondents experienced depressive symptoms including mild (14.5%), moderate (21.2%), and severe (13.2%) levels.¹⁹ However, it was higher than other studies. For instance, a study on the public psychological states and its related factors during the outbreak of COVID-19 in some provinces of China revealed that out of the total 600 participants 497 were nondepressed (82.83%), 86 were mildly depressed (14.33%), 15 were moderately depressed (2.5%) and two were severely depressed (0.33%).³ In addition, a study in

the UK using PHQ-9 reported that the rate of depression was 22.12% during the COVID-19 outbreak.²⁰ The prevalence rate of depression during the COVID-19 outbreak was investigated across 12 studies by using meta-analysis, with prevalence rates of depression ranging from 7.45% to 48.3%. The pooled prevalence of depression was 25%.⁵ The prevalence of depression in the current study was in the mentioned range. However, it was far from the average 25%.⁵ Therefore, depression in the study area is somewhat highly prevalent.

Regarding depressive symptoms across participants' demographic characteristics, the result revealed that out of the total 148 male participants 49.5% and out of the total 63 female participants, 36.48%, met the criteria for severe depressive symptoms to mild depressive symptoms, respectively.

Concerning statistical difference between male and female in depressive symptom levels, independent sample *t*-test result revealed no statistically significant difference was observed. Similarly, another study reported that there was no statistically significant difference across gender in the level of depressive symptoms.¹⁹ In addition to gender the current study investigated whether there was statistically significant difference across age categories by using one-way ANOVA and the finding revealed that there was no statistically significant difference for depression mean score.

Anxiety

In addition to depressive symptoms, the impact of the COVID-19 epidemic on participants' anxiety level was discussed. The interpretation of the finding implies that the higher the score indicated the higher severity level of anxiety. The finding revealed that 11.84% ($M=52.76$, $SD=3.9$) qualify in the criteria for severe anxiety level. Conversely, the majority of the participants 72.03% ($M=40$, $SD=3.9$) qualify in the criteria for medium anxiety level. Similarly, another study on the impact of COVID-19 on mental health reported that one third (33.7%) of participants revealed symptoms of anxiety, among them 11.6% had moderate anxiety symptoms, and 11.6% had extreme anxiety symptoms.¹⁹ The two studies revealed similar levels of severe anxiety but the level of moderate anxiety is extremely prevalent. However, results from a study reported that COVID-19 has disrupted life events and that the worst is yet to come were 47 and 81%, respectively. A systematic study that assessed the prevalence rate of anxiety during the COVID-19 outbreak was conducted

and the finding reported that the prevalence rate of anxiety was 25%.⁴ These responses imply the expectance of high levels of anxiety, fear, and uncertainty about the future around the study area.

In addition, the level of anxiety also computed for male and female participants. The result revealed that a relatively higher percentage 17.46%, and 68.25% of females qualify for anxiety and moderate anxiety, respectively. From male participants 9.45 and 73.62% qualify for the severe anxiety and moderate anxiety, respectively. However, a larger number of female than male participants qualify in the criteria for severe anxiety level.

In addition, independent sample *t*-test result revealed that there was statistically significant difference in anxiety mean score between male and female participants. Similar findings were reported by different studies.^{3,19,20} The current finding revealed that there was statistically significant difference between older and younger participants in anxiety mean scores. In line with this finding, a research report revealed the presence of statistical difference between older and younger participants for anxiety mean score. This is due to increased susceptibility of older people for COVID-19.

Conclusion

Currently, COVID-19 has created multidimensional miserable life condition on human beings all over the world. Some of these impacts include, economic, social, health, and psychological and others. The extent of the problem has become more dreadful in developing country like Ethiopia. Accordingly, the present study investigated prevention mechanisms observed in the community, concern of the participants in relation to COVID-19 and the impact of the problem on mental health.

The study revealed that there is a problem of reluctant behavior in the community to prevent the spread of COVID-19. For instance, considerable numbers of people are not motivated and improperly use preventive mechanisms such as masks, washing hands with soap and water as well as using sanitizer after touching contaminated objects. Consequently, the number of infected people has increased in an alarming rate in the Ethiopian context.

The finding also revealed that peoples' vulnerability for depressive symptoms and severe anxiety symptoms increased during the COVID-19 outbreak. In addition, women are more predisposed to anxiety than their male counterparts. Furthermore, older individuals are more vulnerable to anxiety than younger. However,

there is no statistically significant difference in depressive symptom mean scores across different age groups.

Implications

Prevention is the easiest, as well as cost effective, method to tackle the spread of COVID-19. Most of the prevention mechanisms such as washing hands, use of masks and the like seem simple and everybody can apply them in day-to-day activity. Many people are reluctant to use these prevention mechanisms in the study area. Commitment and motivation to use these prevention mechanisms in the community are essential preconditions. So, all the concerned bodies need to work jointly for the implementation of these intervention mechanisms.

Mental health problems are considerably increased in the community in relation to the COVID-19 epidemic in the study area. Consequently, all the concerned bodies such as psychologists, social workers, health professionals, and mass media need to work jointly to alleviate the mental health problems observed in the community.

Disclosure

The authors report no conflicts of interest in this work.

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