

## Depression, Anxiety Symptoms, Insomnia, And Coping Status of Police Officers During Corona Virus (Covid-19) Outbreak In Ethiopia, 2020: Cross-Sectional Study

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### Abstract

**Background:** Globally, there is a huge fight against coronavirus led by frontlines fighters including police officers. Our study is the first study of psychological response in the police officers of Ethiopia during the pandemic of COVID – 19.

**Methods:** A cross-sectional study was conducted. The questionnaires included the demographic information and the patient health questionnaire (PHQ-9), to assess depression, generalized anxiety disorder 7-item scale (GAD-7), to assess general anxiety symptoms, Insomnia Severity Index (ISI), to assess the sleep status, and Brief Resilient Coping Scale, to know coping status of participants.

**Result:** From all participants 28.9% had screened for depression. Of these 19.7% mild, 7.3% moderate, 1.6 moderate-severe, and 0.3% of participants had severe depression. 30.2% had screened for anxiety symptoms. Of these, 22.1% had mild, 2.6% had moderate, and 5.5% had severe anxiety. And also, 13.8% and 2.1% of police officers had sub-threshold and moderate-severe insomnia respectively.

**Conclusion:** The police officers encountered great level of psychological symptoms during the COVID-19 pandemic like others fighting in frontline in Dessie town. We should provide them with corresponding help. Whenever possible we should ensure that police officers have access to counseling services so they can cope with.

**Key words:** COVID-19; police officer; depression; anxiety; Insomnia; coping

### Background:

Recently, we have been devastated by the coronavirus-2019 (COVID-19) pandemic. Globally, there is a huge fight against coronavirus by frontlines fighters and number of cases and mortality is growing number of areas, including Ethiopia(1).

Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness(2).

Today's increased global mobility has exceedingly provoked new outbreaks causing the public to worry about becoming infected. Police officers have a higher risk of getting infected as one of frontline fighter involved directly or indirectly in the pandemic response(3). The occupation by itself is the most mentally challenging due to rotating shifts, threats of violence, and increased need for hypervigilance(4, 5).

Police services or military units charged with civil policing have to enforce and monitor these restrictions. These frontline fighters will have obligation to do over time and responsibly even during the time of pandemic with high risk of their life(6, 7). psychological problems, anxiety, depression, and sleep problem among police officers may be most commonly expected problems(3, 8).

Since the outbreak of the COVID-19 pandemic, many researchers have evaluated the physical and mental health issues among the health care workers (9-12), there is little systemic study involving the police personnel. During the current pandemic, police personnel are one of frontline fighters who is in added risk of



getting infected as well as infecting own family members.

The main purpose of the study is to measure the prevalence and severity of anxiety, depression, sleep status, and coping among the police officers in Dessie town all who were in duty at the time of data collection.

## Methods

This is a cross-sectional study among frontline police officers. Data were collected from June 20 and July 10, 2020 in Dessie town during the COVID-19 pandemic. We distributed self-report questionnaires to police officers who were in duty after informed consent was received from police officers.

## Study participants

### Materials

The questionnaire consisted of socio-demographic characteristics, psychological tools. To screen depression we used the Patient Health Questionnaire (PHQ-9) which has 9-items and a total score ranging from 0 to 27. A total score will be classified as 0-4, 5-9, 10-14, 15-19, and 20-27 indicates minimal depression, mild depression, moderate depression, moderately severe depression, and severe depression respectively. It has been validated in Ethiopia with Amharic version with Cronbach's alpha of 0.85(13).

To assess general anxiety we used Generalized Anxiety Disorder-7 (GAD-7), 7-point item questionnaire and each has a 4-point likert scale which ranges from 0-3. A total score ranges from 0-21 and Scores of 5-9, 10-14, and 15-21 represents cut points for mild, moderate, and severe anxiety, respectively(14).

To screen for insomnia we used Insomnia Severity Index (ISI) has 7- item questionnaire with a 5-point likert scale ranges from 0-4. A total score ranges from 0-28. Scores of 0-7, 8-14, 15-21, and 22-28 indicates No clinically significant insomnia, Sub threshold insomnia, Clinical insomnia (moderate severity), and Clinical insomnia (severe)(15).

To screen coping status of participants we used Brief Resilient Coping Scale: it has 4-item and Scores of 4-13 points, 14-16 points, and 17-20 points are cut points for low resilient copers, Medium resilient copers, and High resilient copers(16).

Oslo Social Support Scale (Oslo-3): used to screen the availability of social support. It is a 3 items questionnaire which ranges from scores 3-8 poor support, 9-11 moderate support 12-

Participating police officers included all police officers of age greater than 18, who were on duty at the time of data collection in Dessie town.

## Sample size determination and Sampling procedures

To determine the sample size, single population proportion formula was used to determine the sample size and a prevalence of 50% was taken as there was no earlier study done. Assuming 5% margin of error, 95% CI, and 10 % contingency for non-response rate; the final calculated sample was found to 423.

For sampling procedure we used convenience sampling since we can't find exact number of police officers in Dessie town and we tried to include from all type of police officers who were on duty at the time of data collection.

14 strong support(17).

## Statistical data analyses

Continuous were summarized as mean values and standard deviation. And categorical variables were summarized as frequency (percentage). Model assumptions were checked then univariate and multivariate linear regression analysis model was fitted to identify the relationship between socio-demographic factors and dependent variables (depression, anxiety, and sleep problems). Statistically significant differences were identified as a two-sided P-value <0.05.

## Results

### Demographic Characteristics

From all participants 385 participants were included in the final analysis, with a response rate of 91%. Of the total sample, most of the participants (84.2%) were male, and the mean age was 34 with 7.42 SD; This study all police officers reported as they or their family members have no history of being quarantine or being infected with COVID-19. Of the total number of respondents, 197(51.2) live alone, 156(40.5) live with family members, and 32(8.3) live in apartments. The Majority of police officers are single 266(69.1%) and 14(3.6%) are widowed/divorced. From all the participants 19(4.94%) have a history of chronic medical illness, either hypertension, diabetic mellitus, cardiac illness, or asthmatic illness (Table 1).



Socio-demographic variables		frequency	Bivariate linear regression analysis of		Anxiety		sleep	
variables	Variable category	N(%) or μ(23)	Depression		B	Sig.	B	Sig.
			B	Sig.				
Age		34(7.42)	0.154	0.003	0.015	0.630	0.095	0.001
sex	male	324(84.2)	-0.497	0.04	-1.965	0.002	-0.148	0.800
	female	61(15.8)	0		0		0	
Marital status	married	105(27.3)	0.424	0.353	0.262	0.004	0.1528	0.001
	single	266(69.1)	0.048	0.920	-0.567	0.278	1.736	0.001
	Divorced / widowed	14(3.6)	2.314	0.039	1.613	0.195	-0.513	0.652
Religion	orthodox	199(51.7)	0.190	0.653	-0.603	0.195	0.079	0.853
	Muslim	149(38.7)	-0.123	0.776	0.060	0.901	-0.400	0.361
	Protestant	21(5.5)	0.470	0.613	3.886	0.001	2.171	0.020
	others	16(4.2)	-1.064	0.314	-0.893	0.444	-0.926	0.386
Current living with	alone	197(51.2)	-0.137	0.745	-0.380	0.415	0.662	0.144
	With family	156(40.5)	0.182	0.672	0.786	0.097	-0.641	0.140
	In apartment	32(8.3)	-0.124	0.821	-1.241	0.141	-0.014	0.986
Having chronic illness		19(4.94)	0.934	0.037	0.532	0.021	0.520	0.098
BR Coping score		14.46(4.23)	-0.132	0.008	-0.174	0.02	-0.093	0.066
Social support		7.94(3.67)	-0.109	0.008			-0.054	0.025

**Table: 1 Socio-demographic data participants and binary linear regression analysis of depression, anxiety and sleep problem. Prevalence of Depression, general Anxiety, Insomnia, and coping status of police officers**

The prevalence of symptoms for psychological problems among the total sample was 28.9% (95% CI, 26.5%-30.2%) have depression, with 19.7% mild depression, 7.3% moderate depression, 1.6% moderate-severe depression, and 0.3% severe depression. 30.2% (95% CI, 28.2%-33.0%) have anxiety, with 22.1% mild anxiety, 2.6% moderate anxiety, and 5.5% severe anxiety. 15.9% (95% CI, 13.5%-17.2%) for insomnia. Almost all participants have good knowledge of COVID-19 transmission and pandemic (Table: 2).



Variable	Category	frequency	Percent (%)
Knowledge of covid-19 transmission	By Droplet	383	99.5
	By breathing	380	98.7
	By material	385	100
COVID -19 is pandemic(worldwide disease)		385	100
History of quarantine or being infected with COVID-19/ you or your family member?		0	0%
Depression	Minor/no depression	274	71.2
	Mild depression	76	19.7
	Moderate depression	28	7.3
	Moderate severe	6	1.6
	Severe depression	1	0.3
Coping	Low resilient copers	124	32.2
	Medium resilient copers	117	30.4
	High resilient copers	144	37.4
Anxiety	No anxiety	269	69.9
	Mild anxiety	85	22.1
	Moderate anxiety	10	2.6
	Severe anxiety	21	5.5
Sleep problem	no clinical insomnia	324	84.2
	Sub-threshold insomnia	53	13.8
	clinical insomnia(moderate severe)	8	2.1
History of quarantine or being infected with COVID-19		0	0

**Table: 2 prevalence report of participants knowledge about COVID-19, coping, depression, general anxiety, and insomnia Factors Associated with of Depression, general Anxiety, Insomnia, and coping status**

In the multivariable analysis, being younger age, sex, marital status, having chronic diseases, coping, and social support were found to be associated with the of depression, general anxiety, and insomnia. Male gender and coping score of participates displayed a higher risk for depression, and general anxiety, and marital status for insomnia (Table: 3).

Socio-demographic variable		Multivariate linear regression for three psychological health problems					
Variables	Variable category	Depression		Anxiety		Sleep	
		B	Sig.	B	Sig.	B	Sig.
Age		0.132	0.002	0.115	0.070	0.135	0.001
Sex	male	-0.312	0.001	-0.865	0.004	-0.035	0.05
	female	0		0		0	
Marital status	married	0		0		0	
	single	0.124	0.521	-0.213	0.008	0.892	0.001
	Divorced/ widowed	1.256	0.002	0.219	0.321	-0.621	0.120
Having chronic illness		1.235	0.001	0.825	0.004	0.321	0.002
BR Coping score		-0.521	0.001	-0.541	0.002	-0.393	0.021
Social support		-0.032	0.001	-0.201	0.005	0.236	0.054



**Table: 3 Multivariate analyses of factors related to depression, anxiety, and insomnia**

Male Individuals showed 0.312, 0.865, and 0.035 times reduction in depressive, anxiety, and insomnia symptoms respectively, as compared with those female participants (B, -0.312 [p-value=0.001] for depression, 0.865 [p-value=0.004] for anxiety, 0.035 [p-value=0.05] for insomnia). Age of the participants were also significant predictor of depression and insomnia symptoms, (B, 0.132, p-value=0.002) and (B, 0.135, p-value=0.001), for depression and insomnia respectively. In addition, associations were identified between marital status and the three psychological health problems, depression, anxiety, and Insomnia. Being divorced/widowed increases depression symptoms by 1.256 (B, 1.256, p-value=0.002), and being single decrease anxiety symptoms by 0.213, p-value=0.008 but increases insomnia symptoms by 0.892, p-value=0.001.

Having one or more chronic medical illnesses, from hypertension, diabetic mellitus, cardiac illness, or asthma increases the three psychological health problems, by 1.235, p-value=0.001 for depression, by 0.825, p-value=0.004 for anxiety, and by 0.321, p-value=0.002 for insomnia.

Nevertheless, Social support and resilient coping score reduced the score of psychological health problems, depression, anxiety, and insomnia (Table: 2).

**Discussion**

As per to our knowledge this is the first study in Ethiopia, to assess the prevalence and factors associated with psychological health problems among the police officers during the COVID-19 pandemic. These findings provide a comprehensive profile of psychological status in the police officers during the COVID-19 outbreak and may contribute to developing mental health management and intervention strategies.

Main prevalence finding of current study shows that 28.9% (95% CI, 26.5%-30.2%) have depression, with 19.7% mild depression, 7.3% moderate depression, 1.6% moderate-severe depression, and 0.3% severe depression. 30.2% (95% CI, 28.2%-33.0%) have general anxiety, with 22.1% mild anxiety, 2.6% moderate anxiety, and 5.5% severe anxiety. And also 15.9% (95% CI, 13.5%-17.2%) had for insomnia.

Almost all participants have good knowledge of COVID-19 transmission and pandemic. Being younger age, sex, marital status, having chronic diseases, coping, and social support were found to be associated with depression, general anxiety, and insomnia. Male gender and coping score of participates displayed a higher risk for depression, and general anxiety, and marital status for insomnia.

The prevalence of depression in the present study is consistent with the study in china general population during COVID-19 pandemic, which indicated that nearly 34.4% of the respondents manifested depressive symptoms(18).

The Current result is lower than another online survey of china and Singapore during the pandemic of adolescent population(19, 20). The difference might be due to the population and tools used, that in china they include the adolescent population by online data collection, and in Singapore they used General health questionnaire and on people who come for a clinical visits.

The prevalence of symptoms of depression was higher than the previous national health survey done in 2012 before the pandemic in Ethiopia reported as 22.9%(21). These findings indicate that severe psychological distress occurs among police officers during the COVID-19 outbreak.

In the current study, some demographic factors found to associate with depression, general anxiety, and insomnia symptoms during the COVID-19 pandemic. age, female gender, having a chronic medical illness, low resilient coping score, and low social support were identified as risk factors for depression, general anxiety, and insomnia which is consistent with previous studies(18, 19, 22). But being married against previous literature found to be risk factors for anxiety; this might be due the worry about being a source for infection of COVID-19 for loved one and children.

**Strengths**

To the best of our knowledge, this is the first study that has systematically investigated the prevalence of and factors associated with psychological health problems (ie, symptoms of depression, general anxiety, and insomnia,) by standardized rating scales among the police officers during the COVID-19 pandemic in Ethiopia. Our findings may provide more helpful information for policymaking, recognition of high-risk populations, and framework design for police officers' psychological crisis management.

**Conclusions**

This study found the prevalence of symptoms of psychological problems(depression, general anxiety, and insomnia, was 28.9% (95% CI, 26.5%-30.2%), 30.2% (95% CI, 28.2%-33.0%), and 15.9% (95% CI, 13.5%-17.2%)respectively)among police officers in Dessie town during the COVID-19 pandemic. females, advanced age, married(has family), having chronic medical illness, low coping and low social support were found significantly associated with psychological problems.

The study shows the importance of counseling for general anxiety, depression, and insomnia to the participants as means of effectively improving their psychological problems and ultimately improving the quality of participants during this outbreak.

In addition to the general population exposed to the viral outbreak, police officers need serious attention and psychological counseling as they are one of frontline workers during the pandemic.

**Declarations**

**Ethics Approval and Consent to Participate**

The research was approved by the Institutional Review Board (IRB) from Wollo University College of medicine and health science before data collection. Permission was obtained from administrative bodies in Dessie town police organization and the willingness of the respondents also had been asked. Written informed consent were obtained from each participants. The respondents' right not to give information their privacy will be reassured and any information that they give will be kept confidentially. During data collection, the purpose of the study will be properly clarified to the respondents and the questions should be delivered in their own language. Those who score severe psychological problems (depression, anxiety, and insomnia) were advised to contact to mental health specialist (principal investigator).

**Availability of Data and Materials**

The datasets used and analyzed in this study are available from the corresponding author on reasonable request.

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#### Consent for Publication

Not applicable

#### Competing Interests

The authors declare that there is no conflict of interest.

#### Author Contributions

MT, conceptualize and write the manuscript. MT, MN, HG, and MB have contributed to design, data collection tool preparation, writing proposal, and editing. The final manuscript was read by all authors and accepted.

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