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Assessment of psychological stress situation and study of awareness during corona virus disease (COVID19) pandemic among general population in Maharashtra.

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ABSTRACT: Background- 2019 coronavirus disease (COVID-19) pandemic is a public health emergency of international concern and poses a challenge to psychological resilience. So we need to derive some evidence based strategies to overcome the psychological stress situation among general public. Fear of being infected with COVID 19, along with depression like state created by this quarantine makes really in need of such studies.

AIM: To analyse and to better understand state of depression, stress, anxiety, study awareness among general public, about COVID 19 pandemic.
METHODS: cross sectional survey design using online questionnaire among 3 major cities in Maharashtra. A snowball sampling strategy, focused on recruiting the general public living in mainland cities of six divisions of Maharashtra during the pandemic of COVID-19, was utilized. . Data collection took place over seven days (12 May-18 May 2020).

RESULTS: Total 936 responses are recorded. 506 (68.6%) male and 90 (45.5%) were considered to have normal score (0-10).Mild to moderate score (11-26) was of 137 (18.6%) male and 72 (36.4%) female. Severe to extremely severe score (27-42) was found among 95 (12.9%) male and 36 (18.2%) female. For depression subscale, 434 (58.8%) male and 108 (54.5%) female were considered to have normal score (0-9). Mild to moderate score (10-20) was of 185 (25.1%) male and 48 (24.2%) female. Severe to extremely severe score (21-42) was found among 119 (16.1%) male and 42 (21.2%) female.

CONCLUSIONS: During this corona pandemic, most of the people are aware about basic elements of the disease but very much worried about fear of getting the disease and apprehension related to it. People have higher perceived needs to deal with their mental health problems. There is a much need to intensify the awareness program.

KEYWORDS: COVID 19, stress, depression, anxiety, awareness.

I. INTRODUCTION

2019 coronavirus disease (COVID 19) pandemic is a health emergency of everyone's concern and there is possibility of getting under stressed situation among general public. COVID-19 started in December 2019, like a viral outbreak in Wuhan city of central Hubei province of China[1]. Over the past days and weeks, life has changed for everyone in ways unprecedented in our lifetimes. The COVID-19 pandemic has demonstrated how connected we are within our communities and across the globe—both in kinship and in a devastating manner. This crisis has highlighted the extent of interconnectedness of our institutions, including medical, public health, political, economic, and educational. The current pandemic clearly underscores the global nature of our lives today and the limited constructs of nationality, religion, and political leanings in the face of a common threat. Now, more than ever, we need to embrace and nurture a coming together of the global community. Many stayed at home and socially isolated themselves to prevent being infected, leading to a "desperate plea"[2]. There have also been accounts of shortages of masks and health equipment. The ongoing COVID-19 epidemic is inducing fear, and a timely understanding of mental health status is urgently needed for society[3]. The state of lock-down in many parts of the world, which are contributing largely to the global economy has led to the halting of services and products. This has led to a break in the global supply chains and thus, affected the global economy brutally[4].

Some psychosocial stressors such as health threats to oneself and loved ones are associated with pandemics. There are severe disruptions of routines, separation from family members and friends, shortages of daily necessities, salary deduction, social isolation, and school closure .Psychosocial responses to infectious disease outbreaks are variable and can include feelings of anxiety or weakness, an overestimation of the likelihood of infection, the excessive and inappropriate adoption of precautionary measures[5] and an increased demand for health care services in a time ofshortage[6].

In times of strife, we seek community. When "social distancing" is the new normal, we are using technology on a broader scale to provide patient care, stay informed, and connect with family and friends. There are differences across socioeconomic groups with regard to access to technology, and hopefully we can learn how to address these discrepancies from this experience. Transport has been affected globally. Import of steel, iron, inorganic chemicals, etc. from China and other countries has been grossly affected. Transport business even at national levels has ceased due to lock-down in different countries. Most company employees are working from home, which has its financial disadvantages. Educational institutions have been shut down. The uncertainty and postponement of examinations is also a stressor for young minds. As COVID19 is a new disease and is having the most devastating effects globally, its emergence and spread, causes confusion, anxiety and fear among the general public. Fear is the breeding ground for hatred and stigma. Coronaviruses, so named due to the outer fringe of envelope proteins resembling crown ('*corona'* in Latin), are a family of enveloped RNA viruses [7]

2019 coronavirus disease (COVID-19) epidemic is a public health emergency of international concern and poses a challenge to psychological resilience. Research data are needed to develop evidence-driven strategies to reduce adverse psychological impacts and psychiatric symptoms during the pandemic. The governments, media, doctors, researchers, celebrities, police and other stakeholders of the society appealed to the public to avoid public gatherings including sports, religious ceremonies, family functions, meetings as well as classes in school, to prevent the global spread of coronavirus infection[8]. Despite these efforts, many people ignore the importance of social distancing due to attitudinal issues. The anxiety and concerns in society are globally affecting every individual to variable extents. Recent evidence suggests that individuals who are kept in isolation and quarantine experience significant distress in the form of anxiety, anger, confusion and post-traumatic stress symptoms[9].

II. METHODS

We adopted a cross-sectional survey design to assess the public's psychological response during the pandemic of COVID-19 by using an anonymous online questionnaire. A snowball sampling strategy, focused on recruiting the general public living in mainland cities of six divisions of Maharashtra during the pandemic of COVID-19, was utilized. The online survey was first disseminated to college students and they were encouraged to pass it on to others. As our Indian Government recommended the public to minimize face-to-face interaction and isolate themselves at home, potential respondents were electronically invited by existing study respondents. As we perceived difficulty in understanding original English DASS-21, we translated English DASS-21 into simple, comprehensible Marathi language. We prepared questionnaire consisting of DASS-21 tool and additionally questionnaire consisting of information related to Sociodemographic factors. Sociodemographic data were collected on gender, age, education, marital status and employment status. They are also asked about questions regarding awareness of spreading COVID19 and related precautionary measures to it. All respondents were provided informed consent. Data collection took place over seven days (12 May-18 May 2020).

DEVELOPMENT SURVEY: Mental health status was measured using the Depression, Anxiety and Stress Scale (DASS-21) and calculations of scores were based on the previous study. Few Questions formed the depression subscale. The total depression subscale score was divided into normal (0–9), mild depression (10–12), moderate depression (13–20), severe depression (21–27), and extremely severe depression (28–42).Another few questions formed the anxiety subscale. The total anxiety subscale score was divided into normal (0–6), mild anxiety (7–9), moderate anxiety (10–14), severe anxiety (15–19), and extremely severe anxiety (20–42). Next few Questions formed the stress subscale. The total stress subscale score was divided into normal (0–10), mild stress (11–18), moderate stress (19–26), severe stress (27–34), and extremely severe stress (35–42).

STATISTICAL ANALYSIS: Descriptive statistics were calculated. Percentages of response were calculated according to the number of respondents per response with respect to the number of total responses of a question. We used linear regressions to calculate the univariate associations between socio-demographic characteristics and the subscales of the DASS. All tests were two-tailed, with a significance level of $p < 0.05$. Statistical analysis was performed using SPSS Statistic 21.0 (IBM SPSS Statistics, New York, United States).

III. RESULT

An online survey was conducted regarding awareness with ways of spreading of corona virus disease, symptoms of infection, stress response, anxiety experience and about depression condition in general public of Maharashtra. Total of 936 responses are recorded. All participants are above 18 years of age. Study included those who have access to internet. Lowest level of education was observed in this study is up to 5th standard. The highest qualification of more than 80 % of the population was graduation and above. Out of them most of them were healthcare professionals. 83.9% participants are having ages between 18 to 29 years. Among all participants 78.8% are male and 21.2% are female.

Table 1 depicts that proportion of participants having stress, depression, anxiety as per gender, age, marital status, education and occupation wise. There was no gender wise significant difference except anxiety. Stress was significantly high among unmarried people and among students. Depression was also significantly high among student and people doing job. There is no significance of anxiety as marital status, occupation and education wise. Majority of respondents were male who are highly educated (66.6%having graduation).For the stress subscale, out of 936 respondents 506 (68.6%) male and 90 (45.5%) were considered to have normal score (0-10).Mild to moderate score (11-26) was of 137 (18.6%) male and 72 (36.4%) female. Severe to extremely severe score (27-42) was found among 95 (12.9%) male and 36 (18.2%) female. For depression subscale, 434 (58.8%) male and 108 (54.5%) female were considered to have normal score (0-9). Mild to moderate score (10-20) was of 185 (25.1%) male and 48 (24.2%) female. Severe to extremely severe score (21-42) was found among 119 (16.1%) male and 42 (21.2%) female. For anxiety subscale, 470 (63.7%) male and 126 (63.6%) female were considered to have normal score (0-6). Mild to moderate score (7-14) was of 119 (16.1%) male and 24 (12.1%) female. Severe to extremely severe score (15-42) was found among 149 (20.2%) male and 48 (24.2%) female.

Table 2 depicts association between various Sociodemographic variables and mental health status. Gender was highly significant about anxiety (B=0.10, CI=0.25 to 0.37) but has low significance with depression and stress. Unmarried participants having higher significant association than married people (B= 1.02, CI=0.63 to 2.71).Graduate people also have higher association with respect to stress (B=0.76, CI=0.30 to 1.82), depression (B=0.80, CI=0.5 to 0.77) and anxiety (B=0.53, CI=0.09 to 0.74) as compared to primary school and high school education. People having occupation as business are highly significant with stress (B=0.89, CI=0.28 to 1.52).
Most of the people are aware about way of transmission of corona virus. Figure 2 denotes that 54% respondents have admitted that it spreads through sneezing and coughing.15% people were saying it spreads through all routes like kissing, touching and also through food. Figure 3 shows the awareness of participants regarding symptoms of corona virus infection. They are possibly aware about symptoms of corona virus infection but only 43% people admitted that it has fever as symptom which is known to be a major symptom.

IV. DISCUSSION

As the COVID-19 pandemic continues to spread, our findings will provide vital guidance for the development of a psychological support strategy and areas to prioritize like vulnerable subjects. As the pandemic is ongoing, it is important to prepare health care systems and the general public to be medically and psychologically ready fit. First, health authorities need to identify high-risk groups based on sociodemographic information for early psychological interventions. Our sociodemographic data suggest that females suffered a greater psychological impact of the outbreak as well as higher levels of stress, anxiety, and depression. Managing the 'infodemic' (an excess of information that makes it hard to know what's trustworthy and what's not) and maintaining trust in public health authorities is critical to ongoing management of the outbreak.[10] All epidemics and pandemics have their unique characteristics in terms of causality, progression and control measures. It is crucial to provide health education and create awareness during such situations for effective prevention of disease spread[11]. Panic about COVID-19 has its own consequences that are harmful both to outbreak control, and to societal cohesion. For example, panic-buying food and other domestic products affect shops' ability to re-stock, creating a false sense of shortage and feeding back into further panic[12].

Most of the participants in our study were educated - either graduate or post-graduate and were healthcare professionals. The participants had a moderate level of awareness regarding the mode of spread, symptoms. It was possibly due to the government and media emphasizing more on the preventive measures. Educated and especially healthcare people get more sensitized by these information's. As young people are more receptive towards smart phone applications, health authorities could consider providing online or smartphone-based psychoeducation and psychological interventions (e.g., cognitive behavior therapy, CBT) to reduce risk of virus transmission by face-to-face therapy[13].

Epidemics and pandemics are a periodic phenomenon. People in the community face several challenges during such periods. Lack of awareness often leads to an unconcerned attitude, which may adversely affect the preparedness to meet these challenges. Impacts of these epidemics and pandemics are often intense, which may adversely affect the mental well-being of a given population. The fear and anxiety related to epidemics and pandemics also influence the behavior of people in the community. Significant proportion of participants in the survey, despite having adequate awareness about coronavirus infection are largely influenced by media information. Media influences the mental well-being and add to the level of anxiety.[14] Meeting the individual mental health needs in typical clinical settings that need face-to-face interviews for evaluation, is challenging in the current scenario considering the risk of the spread of COVID-19 infection. In this situation considering online mental health consultation might be more beneficial and it can deliver the consultation at the doorstep[15].

LIMITATIONS: We adopted the snowball sampling strategy. The snowballing sampling strategy was not based on a random selection of the sample, and the study population did not reflect the actual pattern of the general population. There was an oversampling of a particular network of peers (e.g., students), leading to selection bias. As a result, the conclusion was less generalizable to the entire population, particularly less educated people. Another limitation is that self-reported levels of anxiety, depression and stress may not always be aligned with assessment by mental health professionals. Obviously, it is limited to only those having smart phones.

V. CONCLUSIONS

During this corona pandemic, most of the people are aware about basic elements of the disease but very much worried about fear of getting the disease and apprehension related to it. People have higher perceived needs to deal with their mental health problems. There is a much need to intensify the awareness program and address the mental health issues of people during this COVID-19 pandemic. Our findings can be used to formulate psychological interventions to improve mental health and psychological resilience during the COVID-19 epidemic.

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Conflict of Interest
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Table No 1: Demographics exploring mental health status among general public during pandemic.

Variable	N (%)	Stress			Depression			Anxiety		
		Normal n(%)	Mild to Moderate n(%)	Severe to Extremely Severe n (%)	Normal n(%)	Mild to Moderate n(%)	Severe to Extremely Severe n (%)	Normal n(%)	Mild to Moderate n(%)	Severe to Extremely Severe n (%)
Gender										
Male	738 (78.8)	506 (68.6)	137 (18.6)	95 (12.9)	434 (58.8)	185 (25.1)	119 (16.1)	470 (63.7)	119 (16.1)	149 (20.2)
Female	198 (21.2)	90 (45.5)	72 (36.4)	36 (18.2)	108 (54.5)	48 (24.2)	42 (21.2)	126 (63.6)	24 (12.1)	48 (24.2)
P			<0.734			<0.089			< 0.001	
Age										
18-29	786 (83.9)	482 (61.3)	184 (23.4)	120 (15.3)	425 (54.1)	207 (26.3)	155 (19.7)	476 (60.6)	138 (17.6)	172 (21.9)
30-44	103 (11)	80 (77.7)	17 (16.5)	6 (5.8)	86 (83.5)	17 (16.5)	0 (0)	86 (83.5)	0 (0)	17 (16.5)
45-60	47 (5.1)	6 (12.8)	6 (12.8)	35 (74.5)	6 (12.8)	6 (12.8)	35 (74.5)	6 (12.8)	0 (0)	41 (87.2)
P			<0.031			<0.076			< 0.001	
Marital Status										
Unmarried	495 (52.9)	123 (24.8)	209 (42.2)	163 (32.9)	186 (37.6)	155 (31.3)	154 (31.1)	163 (32.9)	280 (56.6)	52 (10.5)
Married	409 (43.7)	129 (31.5)	138 (33.7)	142 (34.7)	199 (48.7)	125 (30.6)	85 (20.8)	141 (34.5)	228 (55.7)	40 (9.8)
Divorced	23 (2.5)	1 (4.3)	13 (56.5)	9 (39.1)	3 (13)	7 (30.4)	13 (56.5)	7 (30.4)	12 (52.2)	4 (17.4)
Widowed	9 (0.9)	2 (22.2)	5 (55.6)	2 (22.2)	3 (33.3)	6 (66.7)	0 (0)	2 (22.2)	2 (22.2)	5 (55.6)
P			< 0.001			<0.0240			<0.067	
Education										
None	-	-	-	-	-	-	-	-	-	-
Primary School	7 (0.8)	2 (28.6)	4 (57.1)	1 (14.3)	6 (85.7)	1 (14.3)	0 (0)	4 (57.1)	3 (42.9)	0 (0)
High School	135 (14.2)	17 (12.6)	86 (63.7)	32 (23.7)	52 (38.5)	61 (45.2)	22 (16.3)	35 (25.9)	32 (23.7)	68 (50.4)
Graduate	623 (66.7)	358 (57.5)	115 (18.5)	150 (24.1)	323 (51.8)	104 (16.7)	196 (31.5)	369 (59.2)	138 (22.2)	115 (18.5)
Post Graduate	171 (18.3)	39 (22.8)	76 (44.4)	61 (35.7)	62 (36.3)	42 (24.6)	67 (39.2)	82 (48)	72 (42.1)	17 (9.9)
P			<0.043		< 0.001				<0.078	

Variable	N (%)	Stress			Depression			Anxiety		
		Normal n(%)	Mild to Moderate n(%)	Severe to Extremely Severe n (%)	Normal n(%)	Mild to Moderate n(%)	Severe to Extremely Severe n (%)	Normal n(%)	Mild to Moderate n(%)	Severe to Extremely Severe n (%)
Occupation										
Student	318 (34)	183 (57.5)	59 (18.6)	77 (24.2)	165 (51.9)	53 (16.7)	100 (31.4)	188 (59.1)	71 (22.3)	59 (18.6)
Business	158 (16.8)	47 (29.7)	33 (20.9)	78 (49.4)	52 (32.9)	41 (25.9)	65 (41.1)	58 (36.7)	49 (31)	51 (32.3)
Home Maker	197 (21)	97 (49.2)	34 (17.3)	66 (33.5)	132 (67)	46 (23.4)	19 (9.6)	103 (52.3)	26 (13.2)	68 (34.5)
Job	263 (28.2)	178 (67.7)	63 (24)	22 (8.4)	160 (60.8)	79 (30)	24 (9.1)	176 (66.9)	32 (12.2)	55 (20.9)
P			< 0.001			< 0.001			< 0.6460	

Table No 2: Association between Sociodemographic variables and mental health status among general public during pandemic.

Variables	N (%)	Stress			Depression			Anxiety		
		R2	AR2	B (95% CI)	R2	AR2	B (95% CI)	R2	AR2	B (95% CI)
Gender										
Male	738 (78.8)	0.07	0.03	0.18 (0.05 to 0.33)	0.03	0.01	0.08 (0.11 to 0.27)	0.09	0.06	0.10 (0.25 to 0.37)
Female	198 (21.2)			Reference			Reference			Reference
Age										
18-29	786 (83.9)	0.05	0.01	0.08 (-0.11 to 0.27)	0.02	0.01	0.06 (-0.23 to 0.37)	0.08	0.03	0.07 (0.41 to 0.54)
30-44	103 (11.0)			-0.04 (-1.46 to -1.36)			0.56 (-0.77 to 1.66)			0.16 (0.02 to 0.30)
45-60	47 (5.1)			Reference			Reference			Reference
Marital Status										
Unmarried	495 (52.9)	0.06	0.04	0.21 (0.20 to 0.62)	0.011	0.007	0.65 (0.60 to 1.51)	0.07	0.04	1.02 (0.63 to 2.71)
Married	409 (43.7)			0.09 (-1.24 to 1.40)			0.54 (-0.50 to 1.61)			0.32 (-0.21 to 0.96)
Divorced	23 (2.5)			0.11 (-1.22 to 1.72)			0.18 (-0.12 to 0.37)			0.24 (-0.28 to 0.66)
Widowed	09 (0.9)			Reference			Reference			Reference
Education										
None	0	0.02	0.01	0.05 (-1.76 to 1.81)	0.013	0.009	0.45 (-0.60 to 1.50)	0.005	0.005	0.24 (-0.28 to 0.76)
Primary School	07 (0.8)			-0.11 (-0.71 to 0.46)			0.50 (-0.50 to 1.21)			0.32 (0.21 to 0.96)
High School	135 (14.2)			0.21 (-0.42 to 0.61)			0.44 (-0.77 to 1.23)			0.36 (0.19 to 0.92)
Graduate	623 (66.7)			0.76 (0.30 to 1.82)			0.80 (0.5 to 0.77)			0.53 (0.09 to 0.74)
Post Graguate	171 (18.3)			Reference			Reference			Reference

Variables	N (%)	Stress			Depression			Anxiety		
		R2	AR2	B (95% CI)	R2	AR2	B (95% CI)	R2	AR2	B (95% CI)
Occupation										
Student	318 (34)	0.09	0.06	0.72 (0.30 to 1.06)	0.08	0.03	0.21 (-0.03 to 0.51)	0.03	0.01	0.54 (-1.41 to 0.32)
Business	158 (16.8)			0.89 (0.28 to 1.52)			0.52 (1.41 to 0.32)			0.36 (0.02 to 0.30)
Home Maker	197 (21)			0.24 (-0.23 to 0.89)			0.50 (-0.50 to 1.21)			0.24 (-0.32 to 0.59)
Job	263 (28.2)			Reference			Reference			Reference

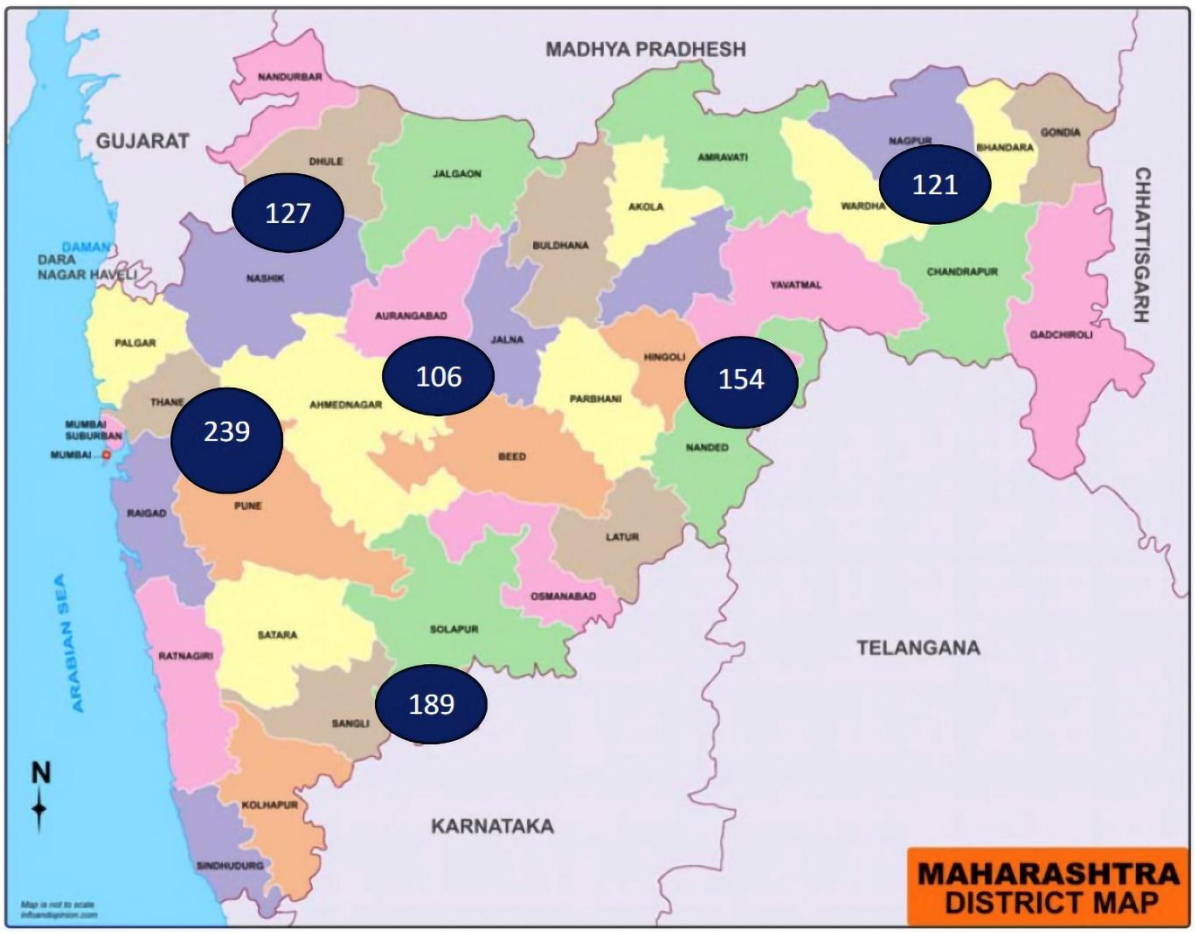

Figure 1. Distribution of study sample across various cities of Maharashtra

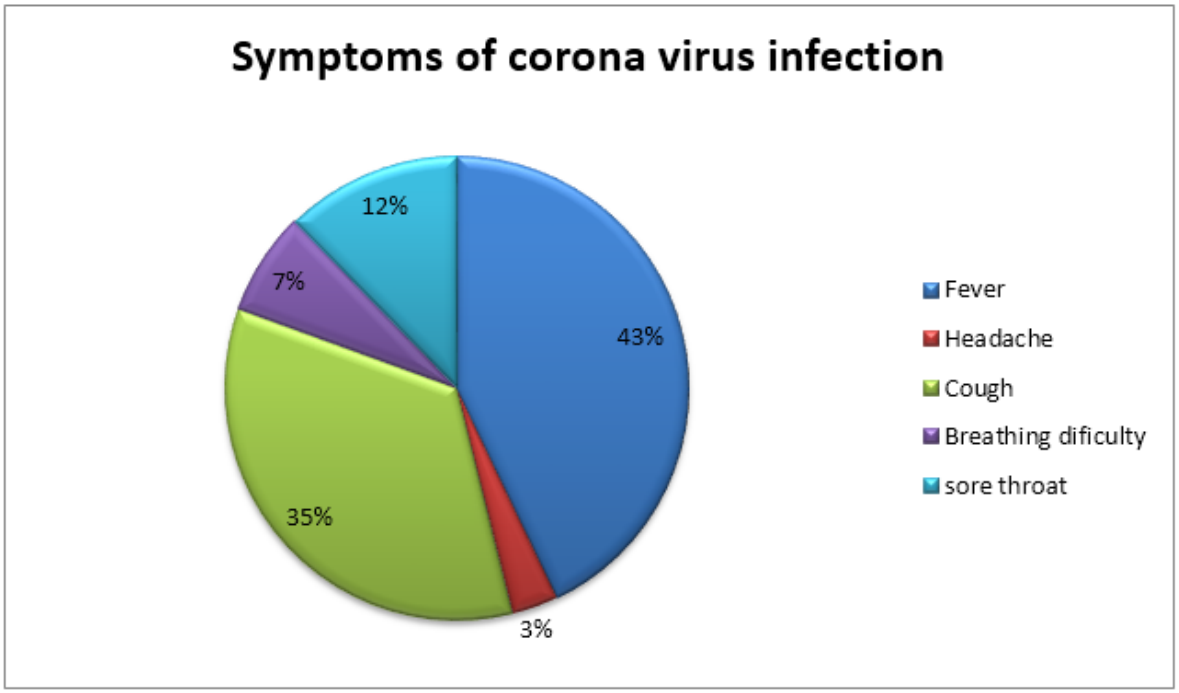

Figure 3. Awareness of participants regarding symptoms of corona virus infection