Psychological Symptoms and Posttraumatic Growth Among the General Population in Wuhan, China During the COVID-19 Pandemic

A Cross-Sectional Study

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ABSTRACT

The aim of the current study was to investigate psychological symptoms and posttraumatic growth (PTG) among the general population in Wuhan, China during the coronavirus disease 2019 (COVID-19) pandemic. An online survey was conducted using convenience sampling. Participants were invited to fill out this questionnaire, which included information on sociodemographic characteristics and other survey objectives. The Psychological Questionnaire for Emergent Events of Public Health (PQEEPH) and the Chinese version of the Posttraumatic Growth Inventory (PTGI) were used. The prevalence of depression, neurasthenia, fear, obsessive-anxiety, and hypochondriasis among 311 participants were 61.1%, 69.8%, 97.8%, 57.2%, and 45%, respectively. Results indicated that a substantial proportion of the general population may have experienced psychological symptoms as well as PTG, due to the COVID-19 pandemic. Findings demonstrate the importance of developing targeted psychological interventions for those at risk for mental health symptoms. [*Journal of Psychosocial Nursing and Mental Health Services, 60*(4), 39-46.]

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Coronavirus disease 2019 (COVID-19) is an acute respiratory infectious disease that has been sweeping the world since the end of 2019. According to research reports, although the case-fatality ratio is not as high as that of previous epidemics and pandemics, such as severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS), the COVID-19 outbreak is unparalleled in recent years in its rapidity of transmission (Li, Guan, et al., 2020). The epidemic spread rapidly to more than 200 countries, causing disease and death in tens of millions of patients around the world within months. The mortality rate for severe COVID-19 cases in China is estimated to be 1.4% to 4.5% (Wu et al., 2020). Wuhan was the first city to report COVID-19 cases, and the death rate of patients with severe COVID-19 was approximately 40%. The uncertainty, susceptibility, and rapid spread of COVID-19 has threatened the physical health of human beings.

Aside from physical problems, COVID-19 has also caused psychological stress for people coping with the outbreak, such as depression, anxiety, and

fear (Khan et al., 2020; Moghanibashi-Mansourieh, 2020). Previous studies have demonstrated negative psychological reactions to critical situations of outbreaks of acute infectious diseases. It was reported that nurses, especially those working in isolation areas, emergency departments, and intensive care units, experienced a significant level of psychological distress during the MERS epidemic (Bukhari et al., 2016). Hawryluck et al. (2004) found that quarantined persons exhibited a high prevalence of psychological distress during the SARS pandemic, and symptoms of depression were observed in 34.2% of respondents. In addition, hospitalized patients in non-isolation wards have also shown anxiety and concern during outbreaks of infectious diseases (Li, Deng, et al., 2020).

According to the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; American Psychological Association, 2013), indirect or extreme exposure to aversive-unpleasant elements or consequences of trauma to genic events can lead to psychological disorders, such as posttraumatic stress disorder (Boudoukha et al., 2017). There is no doubt that the outbreak of COVID-19 is a traumatic event threatening human life. Some studies have reported that people who experience traumatic events, such as violence, natural disasters, and/or diseases, such as cancer, will experience positive and negative effects (Andrades et al., 2021; Bakaityte et al., 2020; Thompson, 1985). Tedeschi and Calhoun (1996) formally defined such positive psychological changes as *posttraumatic growth* (PTG). PTG comprises five aspects: (a) an improved relationship with others, (b) the recognition of new possibilities, (c) an improvement in personal strength, (d) positive spiritual changes, and (e) an increased appreciation for life (Tedeschi & Calhoun, 2004).

Although the psychological impact of COVID-19 has been reported among different groups, it is worthwhile mentioning that numerous studies on the psychological impact of the COVID-19 outbreak have focused on the psychological stress of frontline health care workers and others who are directly related to the epidemic (Mo et al., 2020; Wang et al., 2020). Relatively few studies have examined the psychological distress of the general public during the COVID-19 pandemic. Nevertheless, focusing on how the general population reacts to public health events is more conducive to forming better public health policy (Ko et al., 2006).

On January 30, 2020, the World Health Organization (WHO; 2020) held an urgent conference and announced the outbreak of COVID-19 as an infectious public health emergency of international concern. In a major international public health emergency that is ongoing, it is important to fully explore the impact of the pandemic on mental health status among the actual population to formulate strategies to decrease psychological symptoms during a crisis. Therefore, the aim of the current study was to investigate psychological reactions and PTG levels of Wuhan residents during the COVID-19 pandemic and to analyze influencing factors related to negative psychological reactions so that policy makers and managers can develop targeted strategies to promote recovery from psychological disorders.

METHOD

Participants and Design

A cross-sectional study was conducted from February 23 to March 28, 2020, with a total of 311 participants recruited from Wuhan, China by convenience sampling. Data were collected via an online questionnaire survey platform (access www.wjx.cn) with an anonymous, self-reported questionnaire that was first distributed to local community volunteers over the internet, who then passed the questionnaire on to other populations. The online survey included an invitation letter that contained a description of concepts involved in the study, the research purpose, and information on confidentiality. Consent was signified if participants completed the questionnaire using a smartphone or computer that can open web links. The inclusion criterion was being a member of the general population living in Wuhan during the outbreak of COVID-19. A total of 360 questionnaires were distributed and retrieved. Twenty (5.6%) questionnaires with regular responses and 29 (8%) questionnaires with incomplete responses were excluded, representing an effective response rate of 86.4%.

Study Instruments

Demographic Variables Questionnaire. A self-designed (i.e., designed according to the purpose of the study) questionnaire was used to collect participants' demographic data. Demographic information included sex, age, educational level, occupation, marital status, family members who participants were living with, whether participants had contact with a febrile person or suspected COVID-19 case, whether participants have serious or chronic diseases, whether there are COVID-19 cases in participants' communities, and participants' perspectives on prevention measures in their communities.

Psychological Questionnaire for Emergent Events of Public Health. The Psychological Questionnaire for Emergent Events of Public Health (PQEEPH) was developed by Gao et al. in 2004 and is a simple clinical instrument that analyzes the negative emotions of the public under public health emergency. The PQEEPH is a 25-item questionnaire with five subscales, including depression (six items), neurasthenia (five items), fear (six items), obsessive-anxiety (six items), and hypochondriasis (two items). The extent (ranging from *not at all* to *severe*) and frequency (ranging from *occasionally* to *always*) of emotional reaction are scored on a scale ranging from 1 to 3. Higher scores indicate more severe negative emotions. Scores ≤1 indicate mild levels of depression, neurasthenia, fear, obsessive-anxiety, and/or hypochondriasis; 1 to

2 indicate moderate levels; and ≥2 indicate severe levels. Cronbach's alpha for the questionnaire was 0.898.

Chinese Version of Posttraumatic Growth Inventory. The Chinese version of the Posttraumatic Growth Inventory (C-PTGI) was adapted by Wang (2011) following instructions developed by Tedeschi and Calhoun (1996) and is used to evaluate salutary impact after exposure to trauma. The C-PTGI comprises 20 items and five subscales: relating to others (three items), new possibilities (four items), personal strength (three items), spiritual change (four items), and appreciation of life (six items). Participants rate the degree to which they have experienced the growth described in each item on a 6-point Likert scale that ranges from 0 (*did not experience this change*) to 5 (*experienced to a very high degree*). One item ("I have a stronger religious faith") was excluded due to cultural differences. Total inventory score is the sum of the 20 items, which can range from 0 to 100. Higher scores indicate greater PTG, with scores <60 suggesting lower levels of growth, scores 60 to 79 indicating average levels, and scores ≥80 indicating high levels. Cronbach's alpha for the five subscales ranged from 0.61 to 0.80, and the value for the total scale was 0.87, which indicated very good internal consistency.

Data Analysis

All statistical analyses were performed using SPSS version 23.0. All tests were two-tailed, with a level of significance of $p < 0.05$. Descriptive statistics were used to present participants' demographic characteristics and the prevalence of mental health symptoms and PTG. Generally, distributed data are expressed as means and standard deviations, and count data are expressed as frequencies and percentages. Friedman's rank sum test was used to analyze the difference in scores of each subscale. To compare the prevalence of mental health symptoms in different populations, chi-square tests (or Fisher's exact tests, where appropriate) were performed. One-way analyses of variance (ANOVA) and independent sample *t* tests were used to compare differences in PTG among different sociodemographic factors and epidemic-related variables.

RESULTS

Sociodemographic Characteristics

Data from 311 participants were included in the final analysis. Of the 311 participants, 112 (36%) were male, and 128 (41.2%) were aged <30 years. Most participants were married, living with spouse and/or children, living in urban areas, and had an educational level of Bachelor's degree or higher. Moreover, approximately 8.7% of participants had severe chronic diseases, 9.3% of participants had been exposed to a febrile patient or suspected case of COVID-19, and 65% of participants lived in communities with confirmed cases of COVID-19. In addition, one case of COVID-19 had been diagnosed during data collection. Additional general sociodemographic and epidemic-related characteristics are shown in **Table 1**.

Non-Parametric Tests of Scores and Prevalence of Negative Emotions

The scores and prevalence of psychological symptoms are presented in **Table 2**. Median (quartile range) scores for the five subscales of the PQEEPH (depression, neurasthenia, fear, obsession-anxiety, and hypochondriasis) were 0.17 (0.00–0.83), 0.40 (0.00–0.80), 1.17 (0.83–1.67), 0.17 (0.00–0.50), and 0.00 (0.00–0.50), respectively. The prevalence of each subscale was 61.1% (n = 190), 69.8% (n = 217), 97.8% (n = 304), 57.2% (n = 178), and 45% (n = 140), respectively. The score and prevalence for fear was significantly higher than that of other subscales, reaching the moderate level according to the classification criteria of the PQEEPH. There were statistically significant differences between subscales ($p < 0.01$).

Univariate Analyses of Factors Associated With Psychological Symptoms of Participants

Chi-square tests (or Fisher's exact tests, where appropriate) revealed that participants who were aged ≥50 years, divorced, had severe chronic disease, and had contact with a febrile patient or suspected COVID-19 case had significantly higher risk of developing depression ($p < 0.05$ or $p < 0.01$). Similarly, participants who were divorced, had severe chronic disease, lived in communities with poor prevention measures or confirmed cases of COVID-19 had significantly higher risk of developing neurasthenia ($p < 0.05$ or $p < 0.01$). In contrast, female participants had a higher prevalence of fear and obsessive-anxiety ($p < 0.05$ or $p < 0.01$). Finally, participants who were female, science and/or education/health care workers, had severe chronic disease, and had contact with a febrile patient or suspected COVID-19 case had higher prevalence of suspected psychological symptoms ($p < 0.05$ or $p < 0.01$) (**Table A**, available in the online version of this article).

Levels of PTG Among Participants

Of all participants, 94.9% achieved growth in appreciation of life, 94.9% in personal strength, and 92.9% in relating to others. The PTG of participants was at a low level (mean = 45.59, *SD* = 19.96), and the positive rate was 96.8% (**Table B**, available in the online version of this article).

Univariate Analyses of Factors Associated With PTG Among Participants

Results of the univariate analysis of demographic factors associated with PTG among participants are presented in **Table C** (available in the online version of this article). Data analysis revealed that participants who were female, aged 31 to 40 years, science and/or education/health care workers, married, living with spouse and/or children, and had chronic disease had greater PTG ($p < 0.05$ or $p < 0.01$).

TABLE 1

SOCIODEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS (*N* = 311)

Characteristic	*n* (%)
Sex	
Female	199 (64)
Male	112 (36)
Age (years)	
≤30	128 (41.2)
31 to 40	87 (28)
41 to 50	67 (21.5)
>50	29 (9.3)
Educational level	
Associate's degree or lower	40 (12.9)
Bachelor's degree	210 (67.5)
Master's degree or higher	61 (19.6)
Occupation	
Enterprise staff	102 (32.8)
Student	89 (28.6)
Freelancer	42 (13.5)
Education/health care worker	38 (12.2)
Government employee	26 (8.4)
Retired	14 (4.5)
Marital status	
Married	176 (56.6)
Single	125 (40.2)
Divorced	10 (3.2)
Family members living with	
Spouse and/or children	177 (56.9)
Parents, relatives, or friends	126 (40.5)
Living alone	8 (2.6)
Chronic disease	
No	284 (91.3)
Yes	27 (8.7)

DISCUSSION

The current cross-sectional study investigated the prevalence of and factors associated with mental health symptoms, as well as levels of PTG among participants from the general population in Wuhan, China during the COVID-19 outbreak. Overall, 61.1%, 69.8%, 97.8%, 57.2%, and 45% of all respondents reported symptoms of depression, neurasthenia, fear, obsessive-anxiety, and hypochondriasis, respectively. We identified several factors related to psychological distress, including female sex, age >50 years, science and/or education/health care worker, being divorced, having chronic disease, and contact with a febrile patient or suspected COVID-19 case. Furthermore, this study has also revealed that the majority of the general public experienced positive psychological change in addition to negative psychological symptoms after the outbreak of COVID-19. Participants who were female, aged 31 to 40 years, science and/or education/health care workers, married, living with spouse and/or children, and had chronic disease reported higher levels of PTG. Results of the current study reflect the psychological conditions of the general population in China during the COVID-19 outbreak and will contribute to providing essential guidance for developing mental health management and intervention strategies for specific populations in other areas affected by the pandemic as COVID-19 continues to spread.

A significant number of participants in the current study reported psychological symptoms, such as anxiety, neurasthenia, and fear. The prevalence of psychiatric symptoms in our study was higher than in an epidemiological study performed among the general public in late January 2020 in China (Wang, Pan, et al., 2020), which showed that approximately one third of participants experienced moderate to severe mental health symptoms. The prevalence of mental health symptoms among the general population during the COVID-19 outbreak in Mexico was reported to be 15.7% to 22.6%, and 38% of the general public in Italy reported psychological distress (Cortés-Álvarez et al., 2020; Moccia et al., 2020). Differences in prevalence between countries and regions are worthy of remark, given that Wuhan was the worst hit area at the time of the current investigation, whereas other countries had been exposed to the pandemic for a relatively short time. There might have been more readily available information about the virus before the pandemic reached other countries, and such understanding of the epidemic may explain the lower prevalence of psychosocial symptoms in other areas. In Wuhan, the prevalence of depression, neurasthenia, fear, obsessive-anxiety, and hypochon-

driasis was significant and consistent with previous research on such mental health problems during other disasters (van Griensven et al., 2006; Thienkrua et al., 2006; Zandifar & Badrfam, 2020). These results suggest that emotional distress occurs even in the general population during public health events, and that psychological symptoms are more severe among populations of harder hit areas. The importance of preventing and treating mental health symptoms during the COVID-19 pandemic should continue to be emphasized.

The current study found that some sociodemographic factors may affect mental health during the COVID-19 pandemic. Being female and divorced were identified as risk factors for adverse psychological symptoms, which is consistent with a previous study by Dai et al. (2021). Higher prevalence of mental health symptoms among women can be attributable to a combination of genetic, biological, hormonal, chemical, environmental, social, and psychological factors (van Griensven et al., 2006). Moreover, individuals aged >50 years reported more symptoms of depression, and those with chronic disease experienced more depression, neurasthenia, obsessive-anxiety, and hypochondria symptoms. A cross-sectional study from Poland indicated that being of older age was one major predictor of higher anxiety during the COVID-19 pandemic (Malesza & Kaczmarek, 2021). In addition, previous studies have found that individuals with chronic diseases show psychological symptoms to a certain extent, and the prevalence of mental health symptoms, such as depression and anxiety, are generally higher than among the general population (Dong et al., 2020; Ozamiz-Etxebarria et al., 2020). Severe cases and deaths continue to increase with the spread of COVID-19, and most are middle-aged and older adults with chronic diseases. The fact that COVID-19 is human-to-human transmissible and immunity is lower among older adults and individuals with chronic diseases may intensify the perception of personal danger, which may exacerbate psychological stress among people with chronic diseases.

As expected, science and/or education/health care workers reported more symptoms of hypochondria compared with other professionals. A prior study from Hong Kong during the SARS outbreak showed that 89% of health care workers in high-risk work environments reported mental health symptoms (Chua et al., 2004). Individuals who work in high-risk environments often report more health concerns and fears (Brooks et al., 2018). Science and/or education/health care workers tend to experience more significant mental health problems due to higher risk

TABLE 1 (CONTINUED)

SOCIODEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS (*N* = 311)

Characteristic	*n* (%)
Contact with febrile patient or suspected COVID-19 case	
No	282 (91.3)
Yes	29 (9.3)
Any person infected with COVID-19 in your community	
Yes	202 (65)
No	70 (22.5)
Unclear	39 (12.5)
Level of pandemic prevention in your community	
Medium	149 (47.9)
Good	105 (33.8)
Bad	57 (18.3)

TABLE 2

NON-PARAMETRIC TESTS OF SCORES AND PREVALENCE OF NEGATIVE EMOTIONS

Subscale	Score (Median [Quartile Range])	*n* (%)
Fear	1.17 (0.83–1.67)	304 (97.7)
Hypochondria	0.40 (0.00–0.80)	217 (69.8)
Depression	0.17 (0.00–0.83)	190 (61.1)
Obsessive-anxiety	0.17 (0.00–0.50)	178 (57.2)
Neurasthenia	0.00 (0.00–0.50)	140 (45)
Statistic	709.87[a]	73.473[b]
p	<0.001	<0.001

[a] *Friedman rank sum test.*

[b] *Chi-square test.*

of occupational exposure at work. The incubation period of COVID-19 can be asymptomatic, and its clinical manifestations may be confused with ordinary influenza (Bai et al., 2020). Hence, it is understandable that people may feel threatened by infection after coming into contact with any patient, thus affecting their mental health. The same is true for people who have been exposed to febrile patients or suspected COVID-19 cases. The psychological symptoms of such individuals were not directly derived from the disease, but indirectly caused by the uncertainty of infection and the unknown outcome. The inability to tolerate uncertainty is a factor of anxiety and stress (Wei et al., 2016).

Another prominent finding was the material impact of the safety of the environment, which is partially consistent with previous findings of studies performed during the MERS pandemic (Alsahafi et al., 2016). Individuals with high infection risk due to environmental factors, such as poor epidemic prevention measures in their communities, may be more aware of the risk of infection and thus have more uncertainty. This uncertainty might reinforce the perception of personal crisis, which can lead to mental health symptoms. The environment plays an important role in maintaining healthy emotions (Rautio et al., 2018). Feeling insecure and vulnerable to infection were also considered predictors of poor psychological health (Brooks et al., 2018). Accordingly, it is recommended that appropriate design and implementation of epidemic prevention measures be mandatory after outbreaks of diseases.

Of note, the current study indicated that those who experienced the outbreak of COVID-19 were able to perceive and report their own growth, as 96.8% of participants in Wuhan reported PTG. This finding is supported by previous literature (Chi et al., 2020; Sun et al., 2020). The struggle with trauma not only creates psychological pain, but also provides opportunities for PTG experiences (Joseph & Linley, 2012). Appreciation for all aspects of life and a change in perception of what is important are common experiences for many individuals who struggle with great difficulties. A qualitative study among trauma survivors showed that what participants most strongly agreed with was that trauma clarified what was important in life, and they realized that the balance between life and death was unstable and should not be taken for granted (Shakespeare-Finch et al., 2013), which may explain the scores and prevalence of appreciation of life in the current study. In addition, results of the current study also support the idea that traumatic event–related distress and PTG can coexist (Wild & Paivio, 2004).

Our study showed that six variables—female sex, age 31 to 40 years, being a science and/or education/health care worker, being married, living with spouse and/or children, and having chronic disease—were related to greater PTG. Results indicated that emotional and social support could be predictors of greater PTG. A favorable marriage is good for physical and mental health, whereas poor marital status (e.g., being divorced or widowed) has a more serious impact on people's mental health. Some research has also confirmed that marital status is associated with mental health, which corresponds with the findings of the current study (Albert, 2015; Dreger et al., 2014).

In addition, we found that female sex, being a science and/or education/health care worker, and having chronic disease were factors that were positively associated with PTG. It is worth noting that these populations were also at high risk of psychological symptoms. A cross-sectional survey among psychiatric nurses from Israel found a positive correlation between PTG and degree of trauma exposure (Zerach & Shalev, 2015). Some studies have compared PTG scores of youth who have experienced earthquakes, and results show that a greater degree of PTG is possible if the disaster experience is of high severity (Kim & Oh, 2019). These results support previous research showing positive relationships between mental health symptoms and PTG. Finally, individuals aged 31 to 40 years reported greater PTG. Previous studies have demonstrated that although PTG is correlated with age, results might be influenced by the research tool (Tu & Guo, 2010). This finding suggests that the relationship between age and PTG may need further exploration in future studies.

LIMITATIONS

The current study has several limitations. First, the presence of psychological symptoms was based on participants' self-report rather than clinical diagnosis, which may lead to recall bias. Second, our study was an online survey using a convenience sampling method. Participants' computer literacy might have influenced their responses to the questionnaire. Third, given the cross-sectional nature of this study, it was not possible to observe changes in time and trajectory of the mental health of participants. Fourth, attention should be paid to potential self-selection bias in the study. Individuals who were more concerned about their mental health were more likely to choose to participate in the study.

IMPLICATIONS FOR CLINICAL NURSING PRACTICE

Results of the current study have several implications for nursing practice. Nurses are the primary providers in health care. They are predominantly female and more likely to be exposed to febrile patients, which means they are predisposed to having mental health symptoms compared to other groups. Epidemic-related psychological symptoms may negatively impact quality of care, employees' quality of life, and medical institution operations. Research has indicated that psychological symptoms are negatively correlated with knowledge of COVID-19 (Dubey et al., 2020). Therefore, conducting educational programs on COVID-19 is essen-

tial for hospitals. On one hand, education helps relieve nurses' psychological symptoms; on the other hand, it further reduces the anxiety and fear of the general population through the dissemination of knowledge about COVID-19. Moreover, COVID-19 has greatly increased nurses' work burden. Managers can reduce nurses' work stress and further eliminate psychological symptoms by optimizing scheduling and incentive management.

CONCLUSION

Results of the current study demonstrate that a large proportion of the general population in the virus-stricken city of Wuhan are affected by mental health symptoms as a result of the COVID-19 pandemic. It is necessary for the general population to receive psychological counseling. In the consultation process, particular attention should be paid to women, older adults with chronic disease, science and/or education/health care workers, and individuals with a history of exposure to febrile patients or suspected COVID-19 cases. Helping these individuals establish a strong social support system and implementing appropriate psychological intervention measures can contribute to good mental health. In view of the mental health symptoms of the general public, the government and health institutions should pay more attention to their psychological struggle. According to different situations, adoption of timely and effective coping strategies and establishment of a psychological services system are important. Moreover, among the steps needed to better prepare for future pandemics would be greater use of mental health tools in social medical resources to strengthen the development of positive psychological qualities of the public and, ultimately, the mental health of the general population.

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Table A. Univariate Analyses of the Factors Associated With Psychological Symptoms of Participants.

Variable	Category	**Sample (*n* = 311)**	**Depression (*n* = 190)**	**Neurasthenia (*n* = 217)**	**Fear (*n* = 304)**	**Obsessive-Anxiety (*n* = 178)**	**Hypochondria (*n* = 140)**
Sex							
	Male	112	63 (56.3%)	72 (64.3%)	107 (95.5%)	54 (48.2%)	40 (35.7%)
	Female	199	127 (63.8%)	145 (72.9%)	197 (99.0%)	134 (67.3%)	100 (50.3%)
	χ^2		1.727	2.501	3.898	10.961	6.119
	p		0.189	0.114	0.048	0.001	0.013
Age							
	≤30	128	76 (59.4%)	85 (66.4%)	124 (96.9%)	75 (58.6%)	59 (46.1%)
	31-40	87	58 (66.7%)	66 (75.9%)	85 (97.7%)	52 (59.8%)	41 (47.1%)
	41-50	67	33 (49.3%)	44 (65.7%)	66 (98.5%)	33 (49.3%)	29 (43.3%)
	＞50	29	23 (79.3%)	22 (75.9%)	29 (100%)	18 (62.1%)	11 (37.9%)
	χ^2		9.296	3.262	1.288	2.346	0.886
	p		0.026	0.353	0.732	0.504	0.829
Occupation							
	Student	89	53 (59.6%)	56 (62.9%)	87 (97.8%)	51 (57.3%)	37 (41.6%)
	Enterprise staff	102	67 (65.7%)	76 (74.5%)	98 (96.1%)	55 (53.9%)	52 (51.0%)
	Science and/or education/health care worker	38	21 (55.3%)	30 (78.9%)	38 (100%)	25 (65.8%)	22 (57.9%)
	Functionaries	26	13 (50.0%)	14 (53.8%)	25 (96.2%)	13 (50.0%)	8 (30.8%)
	Freelancer	42	27 (64.3%)	32 (76.2%)	42 (100%)	26 (61.9%)	19 (45.2%)
	Retired	14	9 (64.3%)	9 (64.3%)	14 (100%)	8 (57.1%)	2 (14.3%)
	χ^2		3.124	8.730	3.759	2.524	11.913
	p		0.681	0.120	0.585	0.773	0.036
Marital status							
	Single	125	62 (49.6%)	77 (61.6%)	120 (96.0%)	72 (57.6%)	55 (44.0%)

	Married	176	120 (68.2%)	132 (75.0%)	174 (98.9%)	100 (56.8%)	82 (46.6%)
	Divorced	10	8 (80.0%)	8 (80.0%)	10 (100%)	6 (60.0%)	3 (30.0%)
	χ^2		12.171	6.735	2.962	0.051	1.139
	P		0.002	0.034	0.227	0.975	0.566
Chronic disease							
	Yes	27	25 (92.6%)	26 (96.3%)	27 (100%)	24 (88.9%)	20 (74.1%)
	No	284	165 (58.1%)	191 (67.3%)	277 (97.5%)	154 (54.2%)	120 (42.3%)
	χ^2		10.935	8.532	0.679	10.729	10.086
	p		0.001	0.003	0.410	0.001	0.001
Contact with a febrile patient or suspected COVID-19 case	Yes	29	23 (79.3%)	22 (75.9%)	27 (93.1%)	22 (75.9%)	20 (69.0%)
	No	282	167 (59.2%)	195 (69.1%)	277 (98.2%)	156 (55.3%)	120 (42.6%)
	χ^2		4.465	0.562	1.241	1.840	7.411
	p		0.035	0.453	0.265	0.175	0.006
Is there anyone infected in your community?	Yes	202	126 (62.4%)	151 (74.8%)	196 (97.0%)	118 (58.4%)	90 (44.6%)
	No	70	42 (60.0%)	42 (60.0%)	70 (100%)	39 (55.7%)	28 (40.0%)
	Unclear	39	22 (56.4%)	24 (61.5%)	38 (97.4%)	21 (53.8%)	22 (56.4%)
	χ^2		0.535	6.799	2.105	0.364	2.775
	p		0.765	0.033	0.349	0.834	0.250
Level of epidemic prevention in the community	Good	105	60 (57.1%)	62 (59.0%)	101 (96.2%)	60 (57.1%)	46 (43.8%)
	Medium	149	92 (61.7%)	105 (70.5%)	147 (98.7%)	83 (55.7%)	67 (45.0%)
	Bad	57	38 (66.7%)	50 (87.7%)	56 (98.2%)	35 (61.4%)	27 (47.4%)
	χ^2		1.461	16.335	1.782	0.548	0.189
	p		0.482	0.000	0.410	0.760	0.910

Table B. Levels of Posttraumatic Growth Among Participants.

Subscale	Score (Mean [SD])	Item Score (Mean [SD])	Rank	Positive Case	Positive Rate (%)
Appreciation of life	16.38 (6.81)	2.73 (1.13)	1	295	94.86
Personal strength	7.42 (3.51)	2.47 (1.17)	2	295	94.86
New possibilities	8.31 (4.54)	2.08 (1.13)	4	291	93.57
Relating to others	6.32 (3.40)	2.11 (1.13)	3	289	92.93
Spiritual change	7.25 (4.47)	1.81 (1.12)	5	290	93.25
Total	45.59 (19.96)			301	96.78

Table C. Univariate Analyses of Factors Associated With Posttraumatic Growth Among Participants.

Variable	Category	Total (Mean [SD])	*t/F*	*p*
Sex			-2.393	0.018
	Male	41.81 (22.19)		
	Female	47.71 (18.30)		
Age			2.812	0.040
	≤30	42.91 (18.36)		
	31-40	50.31 (19.19)		
	41-50	43.55 (22.77)		
	＞50	47.97 (20.23)		
Occupation			2.947	0.013
	Student	41.85 (17.05)		
	Enterprise staff	47.20 (21.18)		
	Science and/or education/health care worker	53.68 (15.21)		
	Functionary	48.23 (19.56)		
	Freelancer	43.98 (24.54)		
	Retired	35.57 (17.65)		
Marital status			10.561	<0.01
	Single	40.85 (18.73)		
	Married	49.77 (19.98)		
	Divorced	31.30 (14.64)		
Family members living with			4.168	0.016
	Living alone	38.38 (26.23)		
	Parents/friends and relatives	42.16 (18.09)		
	Spouse and/or children	48.36 (20.57)		
Chronic disease			2.349	0.019
	Yes	54.15 (17.33)		
	No	44.77 (20.03)		