Psychological and Socio-Economic Effects of the COVID-19 Pandemic on Turkish Population

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Abstract The negative effects of the COVID-19 pandemic are not limited to psychological, but also include social and economic effects. This study investigated psychological, social, and economic effects of COVID-19 pandemic on the Turkish population. COVID-19 Phobia Scale (C19P-S) was used to collect data from 2143 participants. Results indicated that women showed the highest phobic reactions on the economic subscale whereas men showed the highest phobic reactions on psycho-somatic subscale. Patterns of differences varied among geographical regions but in general, eastern regions scored higher than western regions. Significant differences were also observed based on educational attainment; lower-middle class showed the highest scores on all the subscales.

Keywords Coronavirus · COVID-19 · Phobia · Psychological · Social · Economic

1 Introduction

After its first appearance in China at the end of 2019, coronavirus disease (COVID-19) quickly became a worldwide pandemic. COVID-19 currently effects all continents and 213 countries. A total of confirmed cases as of May 2020 are 5,370,375 and confirmed death tolls are 344,454 [1]. Many countries have to take
serious measures to slow it down or control the spread rate of COVID-10. Some of these measures include restricting travel abroad, quarantining people, vacationing schools, closing down places of worship, introducing strict curfews, and temporarily closing down offices and shopping centers [2].

Because of large number of infected and death cases and no cure available, COVID-19 cause serious fear and anxiety among public. Similar epidemics such as H1N1, SARS, MERS, Ebola, and Zika viruses have also had similar negative physiological and psychological effects [3]. Anecdotal reports also confirm that COVID-19 leads to increases in the level of anxiety worldwide. Similarly, COVID-19 associated mental difficulties are already being reported [4] and its negative effects are expected to continue for an unknown period of time.

The COVID-19 pandemic have social, somatic, economic, and particularly, psychological effects in Turkey. Studies on the psychological effects of COVID-19 in Turkey is yet limited but available studies already confirm the negative effects of COVID-19 [5]. The current study investigated the psychological social, somatic, and economic effects of the COVID-19 from a heterogeneous sample. The study is expected to contribute to existing literature and pave the way for future research. More specifically, the study aimed to answer the several research questions: Is there a significant difference in COVID-19 phobia between men and women? (R1), Is there a significant difference in COVID-19 phobia among different geographical regions of the country? (R2), Is there a significant difference in COVID-19 based on the participants’ educational attainment? (R3), and is there a significant difference in COVID-19 based on the participants’ socioeconomic statuses? (R4).

2 Literature Review

The review of the studies on the COVID-19 and mental health can be categorized into three predominant themes: Scale development, psychological problems (i.e. anxiety, stress, and depression) associated with COVID-19, and mental-health problems faced by healthcare workers. Studies in the first category mostly focused on the development of assessment instruments related to COVID-19. In this context, the first published study, Ahorsu et al. developed the Fear of COVID-19 Scale (FC-19S) and tested its reliability and validity properties [6]. They reported that 7-item scale has adequate internal reliability and validity. This scale is already adapted to several languages. In addition, Arpaci et al. developed and conducted initial tests for the psychometric properties of the COVID-19 Phobia Scale (C19P-S) [7]. They confirmed reliability and validity of the 20-item and 4-factor scale. The four factors of the C19P-S were psychological, psycho-somatic, economic, and social. This is the first research in the literature that showed multi-factor structure of COVID-19 phobia. In another study, Lee developed and evaluated the properties of the Coronavirus Anxiety Scale (CAS) to identify dysfunctional anxiety associated with the COVID-19 [8]. The results indicated that the 5-item scale has an adequate reliability and validity. Finally, Taylor et al. developed a 36-item
COVID Stress Scales (CSS) to measure the COVID-related anxiety and stress [9]. They proposed a 5-factor scale: (1) Danger and contamination fears, (2) Fears about economic consequences, (3) Xenophobia, (4) Compulsive checking and reassurance seeking, and (5) Traumatic stress symptoms.

In the second group of COVID-19 studies, Rajkumar [10] conducted a literature review on the COVID-19 and mental health [10]. The findings indicated that anxiety and depression symptoms and self-reported stress were common psychological reactions to the COVID-19 pandemic. For example, Ahmed et al. [11] investigated the psychological problems associated with COVID-19 outbreak in China [11]. Their results indicated a much higher rate of depression, anxiety, alcohol consumption, and a lower mental well-being among Chinese people due to the COVID-19 outbreak. Similarly, Huang and Zhao [12] investigated the Chinese participants’ anxiety, depression, and poor sleep quality during the COVID-19 pandemic [12]. They reported that younger people had higher anxiety and depression symptoms compared to older people and healthcare workers had the highest level of poor sleep quality. McKay et al. [13] investigated the relationships among anxiety sensitivity, disgust propensity and sensitivity, and fear of contracting COVID-19 and supported the moderating roles of disgust propensity and sensitivity in the relationship between anxiety sensitivity and fear of contracting COVID-19 [13].

Moghanibashi-Mansourieh [14] investigated the anxiety levels of Iranians during the COVID-19 outbreak [14]. They showed that anxiety levels were higher among women, individuals with COVID-19 contact, people who followed the news more frequently and the age group between 21 to 40 year olds. Wang et al. [15] investigated levels of anxiety, psychological impact, stress, and depression during the initial stages of the COVID-19 outbreak in China [15]. They found that anxiety, depression, and stress were reported as psychological responses to the COVID-19. Similarly, Roy et al. [16] investigated the attitude, anxiety, and perceived-mental-healthcare need among Indian adults during the COVID-19 pandemic and reported higher levels of anxiety [16]. Xiao et al. [17] investigated the effect of social capital on sleep quality, anxiety, and stress among self-isolated people during the COVID-19 pandemic in China. Their results showed that anxiety positively predicted stress, sleep quality, social support [17].

In the third group of COVID-19 studies, Spoorthy [18] conducted a literature review on the COVID-19 and mental-health problems faced by healthcare workers [18]. They found that self-efficacy and poor social support were related to anxiety, stress, insomnia, and depressive symptoms. Similarly, Xiao et al. [19] investigated the levels of anxiety, stress, self-efficacy, sleep quality, and social support among Chinese medical staff during the COVID-19 pandemic [19]. Their results showed that anxiety predicted stress, sleep quality, social support, and self-efficacy. Zhang et al. [20] investigated mental health and psycho-social problems of the medical health workers during the COVID-19 pandemic in China [20]. Their also reported that medical health workers had higher prevalence of insomnia, anxiety, depression, somatization, and obsessive-compulsive symptoms. Lai et al. [21] investigated the degree of symptoms of anxiety, depression, distress, and insomnia among health workers during the COVID-19 pandemic in China [21]. Their results indicated that
health care workers experienced anxiety, depression, distress, and insomnia symptoms, especially women and nurses. Liang et al. [22] investigated Chinese medical staffs’ mental health during the COVID-19 outbreak and reported that several medical staffs experienced clinically significant depressive symptoms. Table 1 summarizes the review of these studies [22].

**Table 1** The review of the studies on the COVID-19 and mental health

| Study | Sample | Instrument(s) | Analysis | Major findings |
|-------|--------|---------------|----------|----------------|
| [6]   | 717 Iranian participants | Hospital Anxiety and Depression Scale (HADS), Perceived Vulnerability to Disease Scale (PVDS) | EFA, CTT and Rasch analysis | Development of the Fear of COVID-19 Scale (FC-19S) |
| [7]   | 3393 Turkish participants | C19P-S | EFA, CFA | Development of the COVID-19 Phobia Scale (C19P-S) |
| [8]   | 775 adults | Work and Social Adjustment Scale (WSAS) | EFA, CFA | Development of the Coronavirus Anxiety Scale (CAS) |
| [9]   | 3479 Canadian and 3375 American participants | Patient Health Questionnaire-4 (PHQ-4), Short Health Anxiety Inventory (SHAI), Obsessive Compulsive Inventory-Revised (OCI-R), Xenophobia Scale (XS), Marlowe Crowne Social Desirability Scale Short Form (MCSD-SF) | EFA, CFA | Development of the 36-item COVID Stress Scales (CSS). |
| [10]  | 28 articles | Literature review | Thematic analysis | Anxiety and depression symptoms and self-reported stress were common psychological reactions to the COVID-19 pandemic |
| [11]  | 1074 Chinese participants | Beck Anxiety Inventory (BAI), BDI-II, Alcohol Use Disorder Identification Test (AUDIT), Warwick Edin- burgh Mental Wellbeing Scale (WEMWBS) | Chi-square test | COVID-19 outbreak resulted in a much higher rate of depression, anxiety, alcohol consumption, and a lower mental well-being among Chinese people |
| Study | Sample | Instrument(s) | Analysis | Major findings |
|-------|--------|---------------|----------|----------------|
| [12]  | 7236 Chinese participants | Generalized anxiety disorder (GAD-7) | Chi-square test | Younger people have a higher anxiety and depression symptoms than older people and healthcare workers have the highest level of poor sleep quality |
| [13]  | 908 Chinese adults | Depression Anxiety Stress Scale-21 (DASS-21), Generalized Anxiety Disorder Scale-7 for COVID-19 Anxiety (CoVGAD-7), Anxiety Sensitivity Index-3rd edition (ASI-3), Disgust Propensity and Sensitivity Scale-Revised (DPSS-R) | Moderation analysis | Disgust propensity and sensitivity have a moderating role in the relationship between anxiety sensitivity and fear of contracting COVID-19 |
| [14]  | 10754 Iranian individuals | DASS-21 | Chi-square, t-test, ANOVA | Anxiety level was higher among women, individuals having a positive contact, people who more follow the news related to COVID-19, and the age group between 21 to 40 years |
| [15]  | 1210 Chinese participants | DASS-21, Impact of Event Scale-Revised (IES-R) | Linear regressions | Anxiety, depression, and stress were reported as psychological responses to the COVID-19 |
| [16]  | 662 Indian adults | Self-reported questionnaire | Descriptive | A high level of anxiety was reported |
| [17]  | 170 self-isolated Chinese individuals | SAS, SASR, PSQI, PSCI-16 | Path analysis | Anxiety positively predict the stress and negatively predict the sleep quality and social capital, which positively predict the sleep quality |

(continued)
| Study | Sample | Instrument(s) | Analysis | Major findings |
|-------|--------|---------------|----------|----------------|
| [18]  | 6 articles | Literature review | Thematic analysis | Self-efficacy and poor social support were positively related to the anxiety, stress, insomnia, and depressive symptoms among health care workers |
| [19]  | 180 Chinese medical staff | General Self-Efficacy Scale (SES), Self-Rating Anxiety Scale (SAS), Stanford Acute Stress Reaction Questionnaire (SASR), Social Support Rate Scale (SSRS), Pittsburgh Sleep Quality Index (PSQI) | Structural equation model (SEM) | Anxiety positively predicted the stress and negatively predicted the sleep quality, social support, and self-efficacy |
| [20]  | 2182 Chinese subjects | Insomnia Severity Index (ISI), Symptom Check List-revised (SCL-90-R), Patient Health Questionnaire-4 (PHQ-4), 2-item depression scale (PHQ-2) | Multivariate logistic regression | Medical health workers had a higher prevalence of insomnia, anxiety, depression, somatization, and obsessive-compulsive symptoms |
| [21]  | 1257 Chinese health care workers | 9-item Patient Health Questionnaire, 7-item Generalized Anxiety Disorder scale, 7-item Insomnia Severity Index, 22-item Impact of Event Scale–Revised | Multivariate logistic regression | Health care workers experienced anxiety, depression, distress, and insomnia symptoms, especially women and nurses |
| [22]  | 23 doctors and 36 nurses in China | Self-rating depression scale (SDS), Self-rating anxiety scale (SAS) | T-test | Medical staffs experienced clinically significant depressive symptoms |
3 Method

3.1 Population and Sample

Population of the current study is individuals who currently reside in Turkey. Convenience sampling from the population obtained a total of 2143 participants (60.3% women). The sample consisted of a wide range of age groups (12–92 years old, M = 39.66, SD=16.87) who willingly completed the online survey. Among the group, majority were married (59%) and middle class (60.1%). Participants came from 72 out of 81 different cities of Turkey [mostly from Konya (27.7%), Karaman (9.3%), Ankara (9.2%), Mersin (6.6%), Istanbul (3.4%), Izmir (3.4%), Adana (3.3%), and Antalya (3.1%)].

More than one fifth of the sample (20.9%) had chronic health problems and most common problems included hypertension (3.9%), diabetics (3.7%), heart problems (1.5%), and asthma (1.4%). A total of 10 participants indicated that they recently diagnosed with COVID 19 (0.5%); 8.9% knew someone close to them diagnosed with COVID 19; and 2.1% knew someone close to them died recently due to COVID 19. Further descriptive information on the participants is reported in Table 2.

Table 2 Descriptive data of the participants

|                          | Frequency | Percent |
|--------------------------|-----------|---------|
| Marital Status           |           |         |
| Married                  | 1264      | 59.0    |
| Single                   | 815       | 30.0    |
| Other                    | 64        | 3.0     |
| Educational attainment   |           |         |
| No formal schooling      | 119       | 5.6     |
| Primary school           | 440       | 20.5    |
| Secondary school         | 119       | 9.3     |
| High school              | 264       | 12.3    |
| Undergraduate student    | 531       | 24.8    |
| College degree           | 435       | 20.3    |
| MSc/PhD student          | 54        | 5.5     |
| Graduate degree          | 62        | 2.9     |
| Missing                  | 19        | 1.5     |
| Social/Economic Status   |           |         |
| Upper                    | 32        | 1.5     |
| Upper middle             | 432       | 20.2    |
| Middle                   | 1288      | 60.1    |
| Lower-middle             | 272       | 12.7    |
| Low                      | 118       | 5.5     |
| Chronic Disease          |           |         |
| Yes                      | 488       | 20.9    |
| No                       | 1694      | 79.0    |
| COVID-19                 |           |         |
| Positive                 | 10        | 0.5     |
| Negative                 | 2133      | 99.5    |
4 Instruments

The Coronavirus Phobia 19 Scale (CP19-S) and a set of demographic questions were used to collect the data. The CP19-S is a self-report instrument with a five-point Likert-type scale to assess the levels of coronavirus (COVID-19) phobia [7]. The scores on the scale range between 20 and 100 and higher scores indicate greater phobia symptoms in the respected subscales and total scale. The validity and reliability properties of the CP19-S are evidenced in a recent study [7].

5 Procedure

The IRB had been received and an online portal that included the demographic questions and the items of the COVID-19 was made publicly available. Data were collected in a period of two weeks and analyzed using parametric statistics. Before the analysis, the assumptions of parametric analyses were screened and found satisfactory.

6 Results

Means, standard deviations, reliability coefficients and normality data on the CP19-S are computed and reported in Table 3. On a five-point Likert scale, overall CP19S score was 3.03 in which both women and men showed the highest phobic reactions on the psychological subscale and the lowest on the psycho-somatic subscale.

A one-way multivariate analysis of variance (MANOVA) showed that there was statistically significant difference between men and women, Wilks’ $\lambda = 0.97$, $F_{(3.2138)} = 16.58$, $p < 0.0001$, $\eta^2 = 0.03$, power = 1.00. On all subscales, women scored significantly higher than men ($p < 0.0001$) but effect sizes of the differences were small (ranged from 0.01 to 0.03). In terms of marital status, there was no multivariate difference, Wilks’ $\lambda = 0.99$, $F_{(8.4274)} = 1.91$, $p > 0.05$, power = 1.00.

One-way MANOVA also tested and found significant differences among the seven regions of Turkey (Fig. 1), Wilks’ $\lambda = 0.96$, $F_{(28.7508)} = 2.82$, $p < 0.0001$, $\eta^2 = 0.01$, power = 1.00. Patterns of differences varied among regions but in general, eastern regions scored significantly higher than western regions ($p < 0.05$).

Significant differences were observed based on the educational attainment of the participants, Wilks’ $\lambda = 0.96$, $F_{(28.7548)} = 3.02$, $p < 0.0001$, $\eta^2 = 0.01$, power = 1.00 and SES, Wilks’ $\lambda = 0.98$, $F_{(16.6520)} = 2.58$, $p < 0.0001$, $\eta^2 = 0.01$, power = 0.97. On all subscales, phobia scores decreased with increasing educational attainment (Fig. 2). For example, on the psychological subscale, those who did not
Table 3 Descriptive statistics, intercorrelations and internal consistency coefficients on the CP19-S total and subscale scores for men and women

| Variables                  | 1. | 2. | 3. | 4. | 5. |
|----------------------------|----|----|----|----|----|
| 1. Psychological subscale  |    |    |    |    |    |
| 2. Psycho-somatic subscale| 0.36 (0.33) |    |    |    |    |
| 3. Social subscale         | 0.63 (0.61) | 0.52 (0.46) |    |    |    |
| 4. Economic subscale       | 0.47 (0.46) | 0.53 (0.58) | 0.49 (0.50) |    |    |
| 5. Total CP19-S            | 0.82 (0.82) | 0.73 (0.71) | 0.85 (0.83) | 0.76 (0.77) |    |

Means

|                          |        |        |        |        |        |
|--------------------------|--------|--------|--------|--------|--------|
|                           | 20.70 (18.89) | 10.23 (9.41) | 15.67 (14.35) | 9.80 (9.17) | 56.40 (51.81) |

Standard deviations

|                         |        |        |        |        |        |
|-------------------------|--------|--------|--------|--------|--------|
|                         | 5.22 (5.71) | 3.90 (3.84) | 4.52 (4.63) | 3.79 (3.64) | 13.83 (14.04) |

Internal consistency coefficients

|                        |        |        |        |        |        |
|------------------------|--------|--------|--------|--------|--------|
|                        | 0.87 (0.88) | 0.89 (0.91) | 0.84 (0.86) | 0.88 (0.88) | 0.92 (0.93) |

Note All Pearson product-moment correlation coefficients are significant ($p < 0.01$)

Note Values outside of parentheses belong to women whereas values enclosed in parentheses belong to men

Fig. 1 Regional differences in COVID 19 effects
have any formal education scored the highest and those with graduate degrees scored the lowest. However, in terms of SES, lower-middle class showed the highest scores on all the subscales and (Fig. 3).
7 Discussion and Conclusion

Even though pandemics cause negative psychological effects such as depression, anxiety, fear of death, phobias, and psychotic symptoms [23], people’s reactions in the face of such stressful events vary greatly among different cultures as well as within the same culture. Similarly, the COVID-19 pandemic is currently affecting a large number of world’s population directly or indirectly. Problems caused by COVID-19 usually lead to fear, anxiety, and phobias in somatic, social, economic, and psychological dimensions, which are already being reported by researchers in China [24]. Similarly, studies conducted in different parts of the world also show that individuals experience similar psychological problems due to COVID-19 [11]. This study was an attempt to show the effects of COVID-19 in the Turkish population.

According to our results Turkish women had higher levels of COVID-19 phobia. This finding supports the finding of recent research conducted in Turkey [5] as well as in other countries [14]. All together these results are in agreement with previous finding in epidemics such as EBOLA, SARS and Zika viruses where women were affected more negatively than men in terms of psychological, economic and general health [25].

COVID-19 restricts access to resources and so people are afraid of not meeting their needs. One of the findings of this research is that women are more afraid of running out of food due to COVID-19, so they tend to accumulate food (This was an item under the economical subscale of the CP19-S). Similarly, Balkhi et al. 26 reported that women were more likely to purchase additional amounts of groceries in fear of them running out [26]. Fear of famine, loss of control over the environment, and insecurity may be the primary reasons responsible for the panic buying phenomenon [27]. According to Ryan et al. [28] COVID-19’s economic restraint and negative effects on the ability of individuals to meet their basic human needs causes stress and fear [28].

One of the risk factors for specific phobias such as corona phobia is educational attainment. Bjelland et al. [29] assert that people with higher educational levels are protected from stress and depression throughout life [29]. As the level of education increases people show stronger emotional responses and are more willing to use problem-focused coping strategies [24]. We also found that individuals with higher educational attainment had lower levels of COVID-19 phobia, which is case among Chinese [30] and Australian samples [31]. On the contrary, Balkhi et al. [26, 32] with Pakistani and Moccia et al. [32] with Italian samples found no significant effect of education in terms of psychological and behavioral problems caused by COVID-19 [26, 32]. Therefore, we conclude that there are cultural differences in terms of the effects of educational attainment on psychological problems caused by COVID-19. In the case of Turkey, we argue that individuals with higher educational levels are more conscious about how to protect themselves from COVID-19 and their coping capacities are better; as a result, they experience lower levels of COVID-19 phobia.
Groups with lower SES in general are more prone to phobias, have weaker coping styles, poorer social support systems, and less access to health services [33]. Similarly, Bitan et al. [34] reported that socioeconomic status (SES) was significantly associated with the fear of COVID-19, in which lower SES reported higher rates of fear [34]. However, Haktanir et al. [5] have found that people with middle SES were more afraid of coronavirus compared to those with higher SES [5]. Yet, our study with more participants from a wider geographic distribution showed no effect of SES on corona phobia. Therefore, we call for more research on the subject.

Based on the results we recommend that psychosocial support systems be provided especially for women who are at higher risk in developing phobic reactions against COVID-19. There are a number of limitations in the current study that need to be addressed at this point. The fact that phobic reactions did not differ significantly in terms of SES in COVID-19 does not match with some research findings in the literature. The reason(s) for this finding can be examined in depth using qualitative research methodologies. Second, the effects of COVID-19 phobia can be demonstrated not only by cross-sectional studies such as the current one but also by longitudinal studies. Correlational studies can be conducted with various psychological structures that are predicted to be related to COVID-19 phobia. The mediators and regulatory psychological structures that lead to COVID-19 phobia can be identified. Finally, the variables investigated in this study do not imply causality in any shape or form because the nature of the current research was descriptive. Experimental research is essential to identify the cause(s) of corona phobia.

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