

Has COVID-19 had a positive effect? The case of Turkey

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Abstract

Objective: The present study aims to investigate whether the COVID-19 pandemic has had a positive effect on Turkish society in terms of post-traumatic growth. **Material and Methods:** This quantitative, cross-sectional study employed the survey model. Prior to the research, all permissions were obtained, and the participants were informed. **Results:** More than half of the participants stated that they felt worried due to the pandemic. Similarly, more than half reported that they had treated COVID-19 at home. Those who reported that they were unemployed, those who thought their mental health was affected, and those who reported that they felt worried due to the pandemic scored high on the post-traumatic growth inventory. **Conclusions:** Some sociodemographic characteristics led to differences in the participants' scores from the post-traumatic growth inventory.

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Keywords: Turkey, post-traumatic growth, sociodemographic characteristics, COVID-19

1 INTRODUCTION

The coronavirus (CoV), the causative agent of COVID-19, can cause a wide range of diseases, from mild infections to potentially fatal infections. While some CoV types can be found in humans and even circulate among humans, some types (such as SARS-CoV transmitted by cats and MERS-CoV transmitted by Bactrian camels) can be found in animals and infect humans.¹ It has been stated that COVID-19 disease, defined as "2019-nCoV" in the literature, is different from its previous types but it did not originate in a laboratory as a bioweapon as it is a naturally mutating virus.² It has also been confirmed that the coronavirus has infected people on all continents except Antarctica.³

Moreover, relevant studies have reported that pandemic has caused economic, social, and psychological traumas all over the world.^{4,5} It has also been noted that individuals' post-traumatic reactions may differ, from anxiety, depression, and post-traumatic stress disorder in some individuals to positive changes in dimensions such as the meaning of life, improvement of relationships, and perception of personal empowerment in some others.⁶ In post-traumatic growth, there is a positive experience of change and an increase in functionality level, emerging with the struggle after vital post-crisis. Post-traumatic empowerment, on the other hand, brings about reordering priorities and making sense of life, improving relationships, increasing self-awareness, realizing new possibilities, and experiencing psychosocial and spiritual changes. Studies examining the effects of pandemics/epidemics/outbreaks on change, development, and empowerment in individuals and society have reported that such health crises caused fear, anxiety, and panic in the masses due to their deadly nature.⁷⁻⁹ but also resulted in positive outcomes such as increased assistance, solidarity, and self-awareness among people and realizing new possibilities.¹⁰ Positive changes in the aftermath of trauma are defined as "perceived benefit," "stress-related growth," or "post-traumatic growth".¹¹ Initially, post-traumatic growth was studied on people exposed to trauma such as earthquakes and other natural disasters.^{12,13} Later, it began to be studied in the healthcare field. Post-traumatic growth was mostly studied on those with life-threatening diseases such as cancer and coronary artery disease.¹⁴⁻¹⁷ and on parents with kids with health problems.^{18,19} (18, 19).

The present study aims to investigate whether the COVID-19 pandemic has had a positive effect on Turkish society in terms of post-traumatic growth and the factors that may affect this situation.

2 MATERIALS AND METHOD

2.1 Participants

This quantitative, cross-sectional study employed the survey model. While calculating the sample size, $t^2 \cdot s^2 / d^2$ formula was used in accordance with the principle of "the dependent variable is quantitative in groups where the population is not known."²⁰ For this research, Karataş's work²¹ was taken as a reference study. In Karataş's research, the standard deviation value of the Post-traumatic Growth Inventory (PTGI) is given as 1.10. Since the difference between dependent variables and independent variables was to be investigated, Cohen's effect size was taken as 0.2 in this formula. Accordingly, when the values were placed in the formula ($t = 1.96$, $s = 1.10$, $d = 0.2$), the minimum sample size (n) was calculated as 106 people.

For sampling, the simple random sampling method was used. Since the government of the Republic of Turkey advised the public to minimize face-to-face interaction and isolate themselves at home, the participants were invited to the study electronically. Participants filled out the questionnaires through the online survey platform.

2.2 Ethics

The participants were informed about the study in writing. Partaking was voluntary, and confidentiality was guaranteed. The data used during the secondary supplementary analysis did not contain any identifying details about the participants. All participants were provided with the first author's and supervisors' contact information. Written permission was obtained from the Scientific Research Platform of the Ministry of Health prior to the study (2020-06-27T20_36_13). Ethical approval was granted by the regional ethical review board (no. 28.09.2020/95674917-108.99-E.33264). In accordance with the Helsinki Declaration criteria, the participants were informed with an informative text included on the data collection form, and the data were collected from "volunteering participants who reported that they did not have any psychiatric disease diagnosed by the physician."

2.3 Data Collection Tools

Data collection tools were the Personal Information Form and the Post-traumatic Growth Inventory (PTGI).

Personal Information Form (includes independent variables): This form aimed to determine some sociodemographic characteristics (e.g., age, gender, education level, job, habits, presence of any chronic illness, etc.)

of the participants.

Post-traumatic Growth Inventory (PTGI): (includes dependent variables): The scale developed by Tedeschi and Calhoun (1996) was adapted into Turkish by Dürü (2006). The Turkish version consists of 21 six-point Likert type (0-5) items and a 5-factor structure. The scale has no reverse-scored items. The total score varies between 0 and 105, and the higher the score, the higher the post-traumatic growth level. The scale has three sub-dimensions: Changes in Self-Perception (CiSP), A Changed Philosophy of Life (ACPoL), and Changes in Interpersonal Relationships (CiIR). In the reliability analysis, the internal consistencies of the scale were calculated as follows: $\alpha = 0.88$ for CiSP, $\alpha = 0.78$ for ACPoL, $\alpha = 0.77$ for CiIR, and $\alpha = 0.92$ for overall PTGI. In this study, they were calculated as follows: $\alpha = 0.93$ for CiSP, $\alpha = 0.88$ for ACPoL, $\alpha = 0.83$ for CiIR, and $\alpha = 0.95$ for overall PTGI. In the literature, if the alpha is between 0.00 [?] $\alpha < 0.40$ the scale is considered unreliable, if between 0.40 [?] $\alpha 0.60$ reliability is considered low, if between 0.60 [?] $\alpha 0.80$ the scale is considered quite reliable, and if between 0.80 [?] $\alpha 1.00$ the scale is considered highly reliable.²² Based on this, the scale used in this study can be considered highly reliable. The Kaiser-Meyer Olkin (KMO) coefficient was also examined for the suitability of the data and the adequacy of the sample size. A KMO value of 0.80 and above is considered excellent, 0.70 - 0.80 is good, 0.60 - 0.70 is medium, 0.50 - 0.60 is bad, and below 0.50 is unacceptable.²³ In this study, the KMO value was calculated as 0.92 (excellent).

2.4 Data Analysis

The obtained data were analyzed with the SPSS-22 software. Numbers and percentages were used in statistical analyses. Histograms were used to determine conformity to the normal distribution, skewness and kurtosis values were examined, and Kolmogorov-Smirnov analyses were performed. Independent samples t-test, One-Way ANOVA test, Mann-Whitney U test, and Kruskal Wallis test were performed on the correlations between socio-demographic characteristics and the scores obtained from overall PTGI and its sub-dimensions. Mann-Whitney U and Duncan tests were used to test the group differences. Finally, the statistical significance was set at $p < 0.05$.

3 RESULTS

The average age of the participants was 31.61 ± 11.05 (min-max: 19-76). 67.0% reported living in a nuclear family, 1.9% in a single-parent family, 13.2% alone, and the rest (17.9%) in an extended family. 17% reported that they smoked, 4.7% reported that they smoked + used alcohol, 75.5% reported that they did neither, and 2.8% reported that they had previously had an addiction. 16% stated that they had a chronic disease.

As seen in Table 1, 11.3% reported living alone, 82.1% with their families, and 6.6% with relatives or friends (Table 1).

As seen in Table 2, 92.5% stated that their health was generally good. However, 59.4% stated that they were concerned that their health might be negatively affected. Of those who had contracted COVID-19, 81.1% stated that their mental health deteriorated and 64.2% stated that their physical health was impaired. 37.7% stated that they did not know how they contracted the disease, and 58.5% treated COVID-19 at home (Table 2). The participants' average length of hospital stay due to COVID-19 was calculated as 4.33 ± 6.69 days (Min-max: 0-30 days). 92.5% stated that their health was generally good while the rest reported having poor health status.

This research examined whether the participants' scores from the overall PTGI or its sub-dimensions differed in terms of their sociodemographic characteristics or health status. As a result, it was observed that variables such as age, gender, marital status, income status, parental status, family type, members of the household, place of residence, perceived health status, health-related anxiety, and presence of a chronic disease did not make a difference in the scores ($p > 0.05$).

As seen in Table 3, 41.5% reported avoiding crowds, 39.6% avoiding public transportation, and 50.9% a decline in their interpersonal relationships after the outbreak of the pandemic (Table 3). Of the participants, 45.3% stated that their habit of storing food and cleaning materials did not change, 34% stated that the frequency they visited health institutions did not change, 48.1% reported no change in their sleeping habits,

40.6% reported no change in their social media usage habits, 37.7% stated that they did not have any difficulty focusing on their goals, 39.6% stated that their belief in the effect of modern medicine did not change, and 36.8% stated that their trust in public institutions remained unchanged. Moreover, 33.0% reported an increase in their frequency of handwashing, 50% reported a significant increase in their usage of masks and gloves outside, 39.6% reported an increase in their health-related anxiety, 44.3% reported an increase in symptoms that bring to mind COVID-19, 48.1% reported an increase in their healthy eating habits, 45.3% reported an increase in their habit of following the news, and 50.9% stated that they started to question the meaning of life more often.

As seen in Table 4, the median value of CiSP scores was obtained to be high for primary school graduates ($p = .047$), for unemployed participants ($p = .006$), for those who reported that their mental health was affected due to the pandemic ($p = .026$), and for those who reported they were concerned about their health ($p = .008$) (Table 4). Also, the median value of ACPoL scores was obtained to be high for those who reported that they had previously had an addiction ($p = .010$), for those who stated that their mental health was affected negatively after the pandemic ($p = .022$), and for those who reported they were concerned about their health ($p = .013$). Besides, the mean and standard deviation values of CiIR scores were obtained to be high for those who perceived their income status as low ($p = .012$), for those who stated that their mental health was affected negatively after the pandemic ($p = .022$), and for those who stated that their physical health was impaired after the pandemic ($p = .012$). Finally, the median value of overall PTGI scores was obtained to be high for unemployed participants ($p = .044$), for those who stated that their mental health was affected negatively after the pandemic ($p = .010$), and for those who reported they were concerned about their health ($p = .006$).

Although the participants' scores from the overall PTGI are not shown in the table, those who reported an increase in their frequency of visiting health institutions ($KW = 9.993$, $p = .041$), those who reported increased health-related anxiety ($KW = 10.300$, $p = .036$), those who reported an increase in the habit of following the news ($KW = 18.232$, $p = .001$), and those with increased trust in public institutions ($KW = 16.463$, $p = .002$) obtained higher scores.

4 DISCUSSION

This pandemic has been a real trauma for all humanity. Trauma is defined as extraordinary incidents that can happen to a person, have various effects on people, and threaten the physical well-being and even life.²⁴ "So, is there a post-traumatic growth, and does that which does not kill us make us stronger?" The present study aims to determine whether the trauma caused by the COVID-19 pandemic has had any positive effects on people.

It was observed that of the participants, 17% reported smoking and 4.7% reported both smoking and using alcohol. COVID-19 is a disease that primarily affects the lungs, however, it is reported that the prevalence of smokers among hospitalized COVID-19 patients is lower than the prevalence of smokers in the general population in a region. Therefore, epidemiological data indicate the need to question smoking as a risk factor in terms of developing COVID-19 pneumonia.^{25,26}

Of the participants, 16% reported having a chronic disease. Some studies reported no clear association between the presence of chronic disease and COVID-19.^{27,28} whereas some other studies did.²⁹⁻³¹ On the other hand, although people of all ages and genders are susceptible to COVID-19, it has been reported that elderly people with underlying chronic diseases are more susceptible to serious illness from COVID-19.³²

In this study, 81.1% of those who had contracted COVID-19 stated that their mental health deteriorated and 64.2% stated that their physical health was impaired. Furthermore, 59.6% stated that they were still concerned about their health. Bostan et al. stated that the physical health of patients diagnosed with COVID-19 was negatively affected.⁴ COVID-19 can cause permanent damage to patients: even two months after recovery, complaints such as burning sensation in the lungs and dry cough have been reported, and ground-glass opacity can be seen on computed tomography (CT) imaging of the lungs.³³ It is known that pandemics/epidemics cause traumatic effects and increase the level of anxiety and stress among people.^{34,35}

In a study by Kardaş and Tanhan to evaluate post-earthquake trauma levels of students, 47.5% reported a low level of post-traumatic stress, 35.5% a moderate level of post-traumatic stress, and 17% a high level of post-traumatic stress.³⁶ In a study conducted with Australian participants, the participants stated that they were concerned about their mental health due to COVID-19. Also, the authors stated that this situation was determinative of positive or negative post-traumatic effects.⁶

In this study, 58.5% of the participants reported having treated COVID-19 at home. Moreover, the participants' average length of hospital stay due to COVID-19 was 4.33 days. It has been reported that 80% of COVID-19 patients develop mild symptoms.³⁷

The median value of overall PTGI scores was obtained to be high for unemployed participants, for those who stated that their mental health was affected negatively after the pandemic, and for those who reported they were concerned about their health. A study conducted in China concluded that having a high education level, being male, having a high level of financial income, and having religious beliefs were the factors that made a difference in post-traumatic growth.³⁸ This result is consistent with the findings in the literature stating that in order for post-traumatic growth to occur, the individual must go through difficult life experiences and be affected by them.³⁹⁻⁴²

The median value of CiSP scores was obtained to be high for primary school graduates, for unemployed participants, for those who reported that their mental health was affected due to the pandemic, and for those who reported they were concerned about their health. Similarly, in Karataş's study, significant differences were found between the participants' scores from the post-traumatic growth inventory and its sub-dimensions and their education levels.²¹ The mean and standard deviation values of CiIR scores were obtained to be high for those who perceived their income status as low and for those who stated that their mental and physical health was affected negatively after the pandemic. It has been stated in the literature that general functionality, perceived social support, the quality of life, optimism, hope, and perception of new opportunities are predisposing factors for post-traumatic growth.^{43,44} Karataş found that those who stated an increase in health-related concerns, suspicions about symptoms, and efforts for healthy nutrition had higher post-traumatic growth levels than those who did not.²¹ People who are tired of the challenging and crowded living conditions brought about by globalization and the fatigue caused by these perhaps desire life to slow down. In his "The Burnout Society" (2015), South Korean cultural theorist Byung-Chul Han argues that the dangers of today arise not from the negativity of the enemy but from the excess of positivities expressed as overperformance, overproduction, and overcommunication.

Those who reported an increase in their frequency of visiting health institutions, who reported increased health-related anxiety, who reported an increase in their habit of following the news, and those with increased trust in public institutions obtained higher scores from PTGI. Visiting health institutions may have led to increased interaction with health professionals about this disease. Also, increased health-related anxiety may have driven the participants to learn more about the pandemic. Besides, the participants stated that their trust in public institutions did not change after the pandemic, which may have helped them maintain their psychological well-being. Similarly, it has been stated in the literature that people's trust in public institutions has increased after the COVID-19 pandemic.²¹ Other studies have also reported that perceived social support increases as the level of traumatic stress increases. This result is also consistent with the findings of many studies showing that perceived social support is associated with post-traumatic stress. It is emphasized that receiving social support positively affects the way an individual copes with trauma and even leads to post-traumatic growth.^{45,46}

In addition, some studies have observed some positive changes in human behaviors during the COVID-19 pandemic. It has been reported that after the pandemic, the sky is bluer, there are fewer traffic accidents, crime rates have fallen, and some other infectious disease rates have dropped.⁴⁷

It has also been reported that public health services are given priority especially in this process due to the risk of transmission. Besides, it has been reported that children approached the measures of "handwashing, mask-wearing, and social distancing" in a collaborative manner during the pandemic. Self-awareness levels

of individuals have also been reported to increase in this process.⁴⁸

In this context, in the course of COVID-19, people are now questioning their priorities and have realized even more deeply how important it is to protect their lives and loved ones. People are now more aware that nothing is more important than their health, and this increased awareness will be effective in maintaining healthy habits.

Conclusion

In conclusion, the study found that socio-demographic characteristics were important in post-traumatic growth. The study also determined that the importance given to “preventive public health measures” increased after the pandemic. It is recommended to conduct further research in the context of different cultures and different samples.

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Table 1: Some characteristics of the participants (N = 106)

Circumstances / Characteristics	n	%
Age 35 and under 36 and above	77 29	72.6 27.4
Gender Women Men	62 44	58.5 41.5
Marital Status Married Single / widowed	47 59	44.3 55.7
Montly Income Low Medium High	28 68 10	26.4 64.2 9.4
Educational level Primary school (8 years) Secondary school (12 years) University	14 20 72	13.2 18.9 67.9
Having children Yes No	43 63	40.6 59.4
Working status Yes No	75 31	70.8 29.2
Place of residence Province District Village	62 28 16	58.5 26.4 15.1
Who does he / she live with? Alone With his / her family With relatives or friends	12 87 7	11.3 82.1 6.6

Table 2. Some Circumstances / Characteristics of Participants Regarding the Current Pandemic (N= 106)

Circumstances / Characteristics	n
Having anxiety/concern over the fact that their health status will change	Having anxiety/concern over the fact that their
Yes	63
No	43
Thinking that their mental health is affected by the pandemic	Thinking that their mental health is affected by
Yes	86
Yes	20
Thinking that their physical health is affected by the pandemic	Thinking that their physical health is affected b
Yes	68
No	38
How they have contracted COVID-19 infection	How they have contracted COVID-19 infection
During travelling (by plane / bus)	1
After an event they had attended	1
From their workplace	29
Does not know	40
From a family member / someone they live with	17
Other	18
What kind of a COVID-19 treatment process they have experienced	What kind of a COVID-19 treatment process th
Intensive care treatment only	2
Intensive care + hospitalization treatment	2
Hospitalization treatment	22
Home quarantine	62
Other	18
Who have supported them during this process	Who have supported them during this process
Their family	31
Their family and friends	15
Their family, friends, and healthcare personnel	53
No one	7
The status of continuing their job/profession after treatment	The status of continuing their job/profession aft
Yes	66
No	28

Table 3. Participants' attitudes and behavior during the current pandemic (N=106)

Circumstances / Characteristics	Decreased significantly n (%)	Decreased n (%)	No change n (%)	Increased n (%)	Increased significantly n (%)
Being in a crowded place	36 (34.0)	44 (41.5)	17 (16.0)	6 (5.7)	3 (2.8)
Preferring public transportation	42 (39.6)	33 (31.1)	28 (26.4)	1 (0.9)	2 (1.9)
Storing food and cleaning supplies	2 (1.9)	10 (9.4)	48 (45.3)	38 (35.8)	8 (7.5)
Washing hands frequently	2 (1.9)	3 (2.8)	14 (13.2)	52 (49.1)	35 (33.0)

Circumstances / Characteristics	Decreased significantly n (%)	Decreased n (%)	No change n (%)	Increased n (%)	Increased significantly n (%)
Wearing a mask or gloves when going out	4 (3.8)	2 (1.9)	7 (6.6)	40 (37.7)	53 (50.0)
Going to health institutions	14 (13.2)	32 (30.2)	36 (34.0)	18 (17.0)	6 (5.7)
Health concerns	2 (1.9)	5 (4.7)	32 (30.2)	42 (39.6)	25 (23.6)
Doubts regarding disease symptoms	1 (0.9)	9 (8.5)	25 (23.6)	47 (44.3)	24 (22.6)
Having a healthy diet	4 (3.8)	7 (6.6)	32 (30.2)	51 (48.1)	12 (11.3)
Trouble in sleeping	4 (3.8)	11 (10.4)	51 (48.1)	32 (30.2)	8 (7.5)
Interpersonal communication	12 (11.3)	54 (50.9)	35 (33.0)	4 (3.8)	1 (0.9)
Following the news	6 (5.7)	8 (7.5)	33 (31.1)	48 (45.3)	11 (10.4)
Using social media	2 (1.9)	5 (4.7)	43 (40.6)	39 (36.8)	17 (16.0)
Focusing on their goals	11 (10.4)	35 (33.0)	40 (37.7)	17 (16.0)	3 (2.8)
Questioning the meaning of life	2 (1.9)	5 (4.7)	24 (22.6)	54 (50.9)	21 (19.8)
Believing in the impact of modern medicine	8 (7.5)	18 (17.0)	42 (39.6)	30 (28.3)	8 (7.5)
Trusting the government and its institutions	11 (10.4)	20 (18.9)	39 (36.8)	29 (27.4)	7 (6.6)

Table 4. Distribution of Participants' Circumstances / Characteristics According to PTGI and sub-scales total mean scores

(N =106)

Circumstances / Characteristics	CiSP
	Median (%95 CI)
Educational level	Educational level
Primary school (8 years)	32.50 (26.50 - 35.92) ^a
Secondary school (12 years)	31.00 (23.08 - 33.81)

Circumstances / Characteristics	CiSP
University	27.00 (21.17 - 26.96) ^a
Test value	KW = 6.132 p = 0.047
Monthly Income	Monthly Income
Low	32.00 (24.94 - 33.91)
Medium	27.00 (20.74 - 26.66)
High	30.50 (25.86-34.73)
Test value	KW = 5.411 p = 0.067
Working status	Working status
Yes	26.00 (21.12-26.82)
No	33.00 (26.92-33.78)
Test value	U = 770.500 p = 0.006
Having bad habits	Having bad habits
Only smoking	31.00 (22.17 - 32.49)
Smoking + alcoholism combined	18.00 (10.32 - 23.27)
None	29.00 (23.46 - 29.00)
Had a bad habit, quitted it	26.00 (-3.17-45.84)
Test value	KW = 4.404 p = 0.111
Thinking that their mental health is affected by the pandemic	Thinking that their mental health is affected by the pandemic
Yes	31.00 (24.81 - 29.59)
No	24.00 (13.63 - 26.26)
Test value	U = 584.500 p = 0.026
Thinking that their physical health is affected by the pandemic	Thinking that their physical health is affected by the pandemic
Yes	30.00 (24.08 - 29.88)
No	28.00 (19.96 - 27.60)
Test value	U = 1079.500 p = 0.161
Having anxiety / concern over the fact that their health status will change	Having anxiety / concern over the fact that their health status will change
Yes	26.98 ± 10.44
No	24.16 ± 13.71
Test value	F = 7.381 p = 0.008

^{a, b} indicate the groups, in which the differences were observed

PTGI: Post-Traumatic Growth Inventory, CiSP: Changes in Self-Perception, ACPoL: A Changed Philosophy of Life, CiIR: Changes in Interpersonal Relationships.