

# Anxiety and psychological needs of high school students: COVID-19 period

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## Abstract

The study aims to examine the relationship between anxiety and psychological needs of high school students during the COVID-19 pandemic period. The fact that the COVID-19 virus poses a threat to mental health as well as physical health, the effects of the pandemic period on the psychological needs and anxiety level of adolescents, especially in a critical developmental stage, and the scarcity of studies concerning adolescent mental health in this period, constituted the purpose of the current study. The quantitative ( $N = 502$ ) and qualitative data ( $N = 29$ ) of the study, in which triangulation design was used, were collected from high school students studying in the Southeast of Turkey. In the quantitative part of the research Multiple Linear Regression was implemented and content analysis was used in the qualitative part. The results indicate that love, belonging and power, which are subdimensions of basic psychological needs, are significant predictors of anxiety level. Additionally, it is seen that the need for freedom subdimension is the least predictive variable for the anxiety level. It is concluded that there are moderate negative and significant relationships between the general and subdimensions of basic psychological needs and the level of state anxiety. In this sense, it has been found that the level of anxiety tends to decrease as the level of the satisfaction of basic psychological needs increases. The results in the qualitative analysis part largely overlap with the results in the quantitative part.

Suggestions based on the findings of the study are made to researchers.

**KEYWORDS**

anxiety, basic psychological needs, COVID-19, high school students, triangulation design

## 1 | INTRODUCTION

The disease caused by the virus has been named “COVID-19” which was seen for the first time in Wuhan, China in December 2019, appeared with symptoms such as respiratory tract insufficiency, high fever, and weakness in people who were in contact with the virus. The World Health Organization declared a pandemic in March 2020. According to the data obtained so far, the cause of death from the disease worldwide is around 6,192,250 based on the information provided by John Hopkins University (Worldmeters, 2022). COVID-19 pandemic has led to unprecedented hazards to mental health globally. During this period, the quarantine measures were taken against the pandemic, additionally the slowdown of the economy, the fear of catching a disease, exposure wrong information, and social changes in life, social distance-hygiene rules, mask use, necessary quarantine practices, lock down harmed and have led increased anxiety, panic, and stress in individuals (Karaaslan, 2021; Le et al., 2020; Tan et al., 2020; Tran et al., 2020). Especially in the early stages of the pandemic, it was observed that the difficulty in accessing healthy information and the presence of contradictory information negatively affected individuals' mental health ( Erku et al., 2021; Fitzpatrick et al., 2020; Li et al., 2020; Wang et al., 2020).

Adolescents and children are one of the groups affected by the restrictions implemented during the pandemic period with adults. The mortality rate due to infection was lower in children and adolescents compared to adults in the early stages of the pandemic which has caused experts to focus less on the physical/mental health status of this group (Ma et al., 2020). Roundly 91% of the global student population has been negatively impacted academically and socially in a negative way during the pandemic (Lee, 2020). Especially the young group; has experienced emotional distress due to the closure of schools, the restriction of social life, insufficient resources to access distance education, and postponed exams (Alam et al., 2022; U.S. Census Bureau, 2021; Cao et al., 2020; Lei et al., 2020; Olagoke et al., 2020; Samadarshi et al., 2020; Wang et al., 2020). Considering that 16% of the world's population consists of adolescents aged between 10 and 19, the importance of adolescent mental health becomes clear (UNICEF, 2019).

The adolescence period is the most intense period of cognitive, social and emotional development, unlike other developmental periods. This period also includes a critical process in which an individual gains identity and can become individualized (Petanidou et al., 2013). During this period, an adolescent also learns about the needs, concerns, and perspectives of others. Because adolescence is a sensitive period even without a pandemic, the reaction of adolescents, who are in a developmentally sensitive period, to the epidemic process is more significant. In addition, developmental hormonal changes in young people are described as important issues for adolescent mental health. In studies on adolescent and child health, 12.4% of anxiety was found between the ages of 12 and 17, and anxiety, depression and stress became the most general mood disorders among adolescents (Woods & Scott, 2016). Looking at the results of recent studies, it is seen that there has been an increase in the rates of depression, stress, anxiety, PTSD, addiction and sleeping disorders in individuals since the beginning of the pandemic (Casagrande et al., 2020; González-Sanguino et al., 2020; Huang & Zhao, 2020; Karaman et al., 2021; Wang et al., 2021).

Moreover, because of the significant mental health consequences of the pandemic, it is crucial to address mental health questions promptly.

Anxiety can be defined as a mood that includes the feeling of tension, fatigue and physical pain that comes with anxious thoughts (Hardy & Castonguay, 2018). Within the scope of public health, having a positive mood is seen as a protective factor so that individuals can manage their anxiety and develop appropriate reactions (Wang et al., 2021). Yalom (2008) stated that protecting the mental health of young people and taking early intervention while working with them will have a positive effect on them in the future. So meeting the basic psychological needs of an individual is one of the factors that support their mental health. Glasser stated that every individual has five basic needs that emerge with birth in Choice Theory. These needs are intertwined. While the need for survival is a physical need; the needs for love and belonging, power and fun are psychological ones (Glasser, 2005). Every person is born with different needs, but every need is on a different level for every individual (Akpınar & Öz, 2013). According to this theory, individuals; in their brains have an internal control mechanism that activates their behaviors and emotions by the system and directs it to meet its needs. Therefore, our behavior and choices are controlled by our genetic needs (Clifton, 2011). Glasser (1998) states that the most important source of motivation for people to continue their lives is to meet basic needs. As an individuals meet their needs, they will enjoy life more. When the basic psychological needs of an individual are not met, the individual will reject the social realities in the event they live and will find inappropriate methods to continue their life (Latipun, 2008). Wubbolding (1988) states that successful identity development occurs when an individual receives sufficient love.

Hence, satisfying the psychological needs of a person during adolescence will help them to establish more meaningful relationships with their environment, while also serving to make more meaningful choices and healthy personality development (Eisenberg et al., 2015; Wang et al., 2020).

Considering the results of the studies conducted during the COVID-19 pandemic period, the economic problems, which are one of the negative outcomes of the pandemic, have caused many family members to be unemployed or have financial difficulties. As a result of this situation, many adolescents and children have had to be witnesses or victims of domestic violence (Campbell et al., 2020; Cao et al., 2020; Çiçek & Almalı, 2020). Adolescents and family members had to share the same environment for a long time due to calls to "stay at home," which is one of the measures taken regarding the pandemic. This situation has caused some parents to have to carry their workload home. The way parents work like this has put them under stress. The communication disruptions experienced as a result of this situation caused the houses to turn into an environment of chaos and disrupted the psychological needs of adolescents (Ari, 2020; Crescentini et al., 2020).

The results of different studies show that adolescents describe their friends as a source of social and emotional support (Helsen et al., 2000). Being away from friends, who play a critical role in the social development of adolescents due to pandemic restrictions, it can be stated among the negative risk factors and especially during this period, the fact that adolescents stay away from friends can be assumed among the negative factors affecting adolescent mental health (OECD, 2021).

According to the data from the United Nations Scientific and Cultural Organization (UNESCO), the closure of schools and education centers has negatively affected 87% of the student population worldwide (UNESCO, 2020a). Considering that adolescents constitute a significant part of the student population, the school can be considered an important source of psychological needs, and it has an important role in the life flow of adolescents.

So school is not only a place that provides education but also an institution where adolescents have friends, with whom they can meet their needs for love and belonging and cooperation (Corey, 2008). The social support that an adolescent receives from their friends plays a functional role both in the coping mechanism they develop against their problems and in gaining a sense of belonging so that the school can be considered as an institution that can help adolescents meet their power needs as well as being a training center.

The lack of literature was the reason for this study. This research, which was conducted to examine the relationship between anxiety and the basic psychological needs of students attending high school during the COVID-19 pandemic period; consists of two dimensions. In the quantitative dimension of the research, the questions; Do the basic psychological needs and anxiety levels of high school students differ according to

demographic variables (gender, school type, school, class, income level of the family, number of siblings, mother's education level, father's education level, thought about when the epidemic will end, and whether there is a relative who has been treated for COVID-19 in the immediate vicinity, data concerning the experiences of individuals treated for COVID-19 related to the disease and the treatment process)? Is there a relationship between the basic psychological needs of high school students and their anxiety levels? Do the basic psychological needs of high school students predict their anxiety levels? are answered during the COVID-19 pandemic period. In the qualitative dimension of the research, the question; What are the opinions of high school students regarding their psychological needs and anxiety levels? is answered. The study is expected to shed light on studies that will support adolescent mental health during the COVID-19 pandemic period.

## 2 | METHOD

### 2.1 | Research design

In the study, qualitative and quantitative methods were used together. A study using both quantitative and qualitative methods is called a mixed study (Fischler, 1992). It is argued that the full purpose of a study cannot be achieved by using only qualitative or only quantitative design in it (Johnson & Onwuegbuzie, 2004). Therefore, both methodologies were used in the research. In the quantitative dimension of the study, the relationship between the basic psychological needs and anxiety levels of high school students was examined, while in the qualitative dimension, it was aimed to examine the basic psychological needs and anxiety levels of the students in more detail and in this part of the study the findings were limited to four needs. In this section, research was conducted based on Glasser's Choice Theory. Hence, this study used a triangulation design, which is one of the mixed research methods. In this design, qualitative and quantitative data are collected simultaneously and the results are compared to see whether the data support each other (Büyüköztürk et al., 2017). After the comparison, the data obtained were combined and a general conclusion was reached (Patton, 2002).

### 2.2 | Sample

The sample of the quantitative dimension of the research consists of 502 participants and the sample of the qualitative dimension consists of 29 participants. While the quantitative sample consisted of 58.4% ( $n = 291$ ) female and 41.6% ( $n = 207$ ) male participants, the qualitative sample consisted of 41.3% ( $n = 12$ ) female and 58.6% ( $n = 17$ ) male participants. Participants consist of high school students between 9th and 12th grades. While the simple random sampling method was used in the formation of the sample group of the quantitative research, the purposive sampling method was preferred in the formation of the qualitative sampling group because it offers a rich database (Büyüköztürk et al., 2017).

### 2.3 | Procedure

The data of the study were obtained through online applications between October and November of 2020 due to the COVID-19 pandemic conditions. School guidance services and school administrators were consulted on this issue and necessary permissions were obtained. Online questionnaires were sent to students. Before the surveys and interviews were conducted, the participants were informed about the research to be conducted and they were included in the study in line with the volunteering criteria while students who did not complete the online questionnaire were excluded. Parent consent was also obtained for the qualitative dimension of the study. All participants were informed that the data would be kept confidential by using them only in this study.

## 2.4 | Data collection tools

### 2.4.1 | Personal information form

With the Personal Information Form created by the researchers, the participants were asked about gender, school type, school, class, income level of the family, number of siblings, mother's education level, father's education level, thought about when the epidemic will end, whether there is a relative who has been treated for COVID-19 in the immediate vicinity. Data concerning the experiences of individuals treated for COVID-19 related to the disease and the treatment process that participants listened to were also collected.

### 2.4.2 | Basic Psychological Needs Scale (BPNS)

This scale, which consists of 26 items, was created based on Glasser's Choice Theory (Glasser, 1998). It consists of 4 factors: "Power," "Fun," "Freedom," and "Love and Belonging." As a result of the exploratory factor analysis, it was seen that the four dimensions explained 45% of the total variance. The result of Barlett Sphericity, which was implemented to determine the sample suitability, was significant between 1823.35 and 0.001 (İkinci, 2003). The reliability of the scale was found using the Cronbach Alpha internal consistency method. The reliability coefficient for general and subresults ranged between 0.83 and 0.64.

### 2.4.3 | State-Trait Anxiety Inventory

The State-Trait Anxiety Inventory developed by Spielberger et al. (1970) was adapted into Turkish by Öner and Le Compte (1983). While assessing the reliability of the scale, the Pearson Product-Moment Correlation was calculated via the test-retest method. As a result of the calculation, values of 0.26 and 0.68 were found. The internal consistency and homogeneity of the scale were found through the Kuder Richardson formula, and this value was calculated as 0.83–0.87. The scale had construct validity and the validity score was calculated with the criterion-dependent validity method.

### 2.4.4 | Interview questions

The interview form used in the study consisted of 17 questions and was developed by the researchers considering the literature on psychological needs and anxiety. Questions that provide faster access to knowledge are called probe questions (Patton, 2002). For this reason, probe questions were included in the interview questions. Opinions were received from 2 education experts and 2 assessment and evaluation experts regarding the interview questions. In line with the feedback from them, the questions were revised and finalized. For example: "Did you feel that your need for freedom was restricted during the pandemic period? If so, can you give an example?" "What were the situations that worried you the most during the pandemic period?"

## 2.5 | Descriptive statistical information about scales

Descriptive statistical data about the BPNS and the Anxiety Scale are given in Table 1.

**TABLE 1** Basic psychological needs scale and state-trait anxiety scale descriptive statistics

Scale	Item	Range	Min.	Max.	Mean	SD	Variance
Basic Psychological Needs Scale	26 items	3.67	1.17	4.83	3.2753	0.74507	0.555
State-Trait Anxiety Scale	20 items	2.85	1.00	3.85	2.3514	0.64868	0.421

Abbreviation: SD, standard deviation.

## 2.6 | Statistical analyses

Within the scope of the quantitative dimension of the research, it was first checked whether the items in the data set were entered correctly. The total scores of the scales and the Z scores of the subdimension scores were calculated separately. Four data other than +2, -2 values were accepted as extreme values and were excluded from the data set (Büyüköztürk et al., 2017). The distribution of the data was evaluated via the Shapiro–Wilk test. The analysis was based on a significance value of 0.05. The measure of homogeneity of variance is ( $\text{sig} = 0.180, p > 0.05$ ) in the study. In the analysis of the relationship between demographic variables, and basic psychological needs and anxiety levels, *t* test and single-factor analysis of variance were used in groups with normal distribution (parametric) and the Kruskal–Wallis was used in non-normally distributed (nonparametric) groups. Mann–Whitney *U* and Scheffe Tests were used to determine between which groups the intergroup significant difference occurred. In addition, the effect value (Cohen's *d*), which shows the size of the difference, was calculated for the groups that were expected to differ (Cohen, 1988).

In the qualitative aspect of the research, the answers given by the participants to the semi-structured interview questions were audio recorded with the permission of the researcher during the interviews. The data obtained from these interviews were analyzed using the inductive content analysis method. Inductive content analysis is the process of making the themes and categories created with the help of codes created from the expressions of the participants (Patton, 2002). Therefore, each statement of the participants was examined and themes and codes were created in accordance with the purpose of the research. Through the codes that are thought to be related to each other, 4 themes, “Power need,” “Love and belonging need,” “Fun need,” and “Freedom need,” were created for the subproblem of the research related to meeting the basic psychological needs. The subproblem of the study concerning anxiety levels was examined under the name of “Anxiety status” in a single theme. The themes created for two subproblems in the qualitative dimension of the research created certain categories (Elo & Kyngäs, 2008). Sharing the views of the participants and sharing their statements as quotations increases the validity of the research (Yıldırım & Şimşek, 2013). The opinions of domain experts and measurement and evaluation experts were taken at every stage from the data collection process to the data analysis, the creation of codes and themes.

## 3 | RESULTS

The findings of the quantitative and qualitative dimensions of the research are given below.

### 3.1 | Quantitative research

When the relationship between demographic variables and basic psychological needs is examined in the study, it is seen that there is a significant difference between male and female students in the *t* test findings related to the “Need for Freedom” dimension ( $t = -5.256; p < 0.05$ ). The results show that female students ( $\bar{x} = 2.58$ ) have lower scores than male students ( $\bar{x} = 2.95$ ). Basic psychological needs differ significantly according to the average monthly

income of a family ( $F = 5.969$ ;  $p < 0.05$ ). Cohen's value for the overall scale is (0.034). Those with middle income are the group whose basic psychological needs are met the lowest, and Scheffe test showed that there is a significant relationship between groups with low income and medium income level. According to Kruskal–Wallis findings, when basic psychological needs are examined in terms of mother's educational status, it is seen that students with mothers with “Graduate” education have the lowest scores ( $\chi^2 = 15.128$ ;  $SD = 5$ ;  $p < 0.05$ ). It is determined that the basic psychological needs scores ( $\bar{x} = 3.16$ ) of the participants who declared that they had a relative who was treated for COVID-19 in the hospital were lower than the scores ( $\bar{x} = 3.46$ ) of the participants who did not have a relative who was treated for COVID-19. When the findings about whether the demographic characteristics of high school students differ according to their anxiety levels during the COVID-19 period are examined, it is concluded that the anxiety levels of high school students differ significantly based on the number of siblings ( $\chi^2 = 9.274$ ;  $SD = 3$ ;  $p < 0.05$ ). The significant difference is in the direction of the group of participants without siblings. In addition, analysis of variance findings ( $F = 16.936$ ;  $p < 0.05$ ) regarding the comparison of high school students' anxiety levels in terms of family average monthly income show that the group with the lowest level of anxiety is the group with the lowest income. Considering the thoughts about when the epidemic will end, it is seen that there are significant differences ( $\chi^2 = 9.673$ ;  $SD = 4$ ;  $p < 0.05$ ). Participants who think that the epidemic will end between “6 months and 1 year” have a lower average than the other groups. However, the group with the highest rank average is the group with the idea that “it will not end in 2 years.” Also, there is a significant difference in whether there was a relative who was treated in the hospital due to COVID-19 in their immediate surroundings or not ( $t = 3.819$ ;  $SD = 496$ ;  $p < 0.05$ ). The anxiety levels ( $\bar{x} = 2.44$ ) of the participants who declared that they had a relative who was treated in the hospital due to COVID-19 are higher than the anxiety levels ( $\bar{x} = 2.21$ ) of the participants who did not have a relative who was treated for COVID-19. Pearson Correlation Analysis was performed and the findings are given in Table 2.

It is concluded that there are negative and significant relationships between the overall and subdimensions of the BPNS and the Anxiety Scale scores. There is a moderately negative relationship between anxiety and the need for power ( $r = -0.494$ ). There is a moderate negative correlation between anxiety and the need for fun ( $r = -0.444$ ). There is a weak negative correlation between anxiety and freedom ( $r = -0.255$ ). A moderate negative correlation is found between anxiety and the need for belonging and love ( $r = -0.512$ ). In addition, there is a moderate negative correlation between anxiety and basic needs grand total ( $r = -0.505$ ). All the relationships obtained are significant. To determine whether the level of meeting the basic psychological needs of high school students predicts their anxiety levels during the COVID-19 pandemic period, Multiple Linear Regression Analysis was performed and the findings are given in Table 3.

Within the scope of the analysis, the assumptions of the Multiple Linear Regression Analysis were tested first. As a result of the analyzes, it was determined that the binary correlation coefficients of the independent variables ranged between “0.48” and “0.78.” Considering the VIF values, these values were calculated between “1.530 and 3.231” and it was concluded that there was no multicollinearity problem between the variables. Additionally, the

**TABLE 2** Descriptive statistics and correlations for all variables

	$\bar{X}$	SS	N	1	2	3	4	5	6
1 Power Need	3.75	0.942	498	1					
2 Fun Need	3.06	0.810	498	0.712**	1				
3 Freedom Need	2.74	0.809	498	0.481**	0.556**	1			
4 Love and Belonging Need	3.55	0.924	498	0.783**	0.739**	0.540**	1		
5 Basic Psychological Needs Total	3.28	0.745	498	0.883**	0.877**	0.742**	0.905**	1	
6 Anxiety Level	2.35	0.649	498	-0.494**	-0.444**	-0.255**	-0.512**	-0.505**	1

**TABLE 3** Multiple linear regression analysis findings

Variables	B	Standard error	$\beta$	t	p	Bivariate r	Partial r
Constant	3.767	0.111		33.799	0.000		
Power Need	-0.147	0.044	-0.213	3.309	0.001*	-0.494	-0.147
Fun Need	-0.085	0.049	-0.107	1.735	0.083	-0.444	-0.078
Freedom Need	0.057	0.038	0.071	1.517	0.130	-0.255	0.068
Love and Belonging Need	-0.214	0.048	-0.305	4.476	0.000*	-0.512	-0.198
R = 0.539	R <sup>2</sup> = 0.291						
F <sub>(4-2497)</sub> = 50.512	p = 0.000						

Durbin-Watson value, which indicates whether there are associated error values, was also checked, and this value was found to be 1.304 in the analysis. Considering that this value is less than 1 or higher than 3 will be regarded as an error indicator, it can be said that the regression model is significant. Besides, the CI value was calculated as "10.587" in the need for power, "11.093" in the need for fun, "16.305" in the need for freedom, and "19.359" in the need for love and belonging (ÇoklukBökeoğlu et al., 2010). These results show that Multiple Linear Regression Analysis can be done. When the results of the regression analysis are examined, the variables "Need for Power," "Need for Fun," "Need for Freedom," and "Love and Belonging" explain 29.1% of the variance in students' anxiety levels. While the needs for power and love and belonging are significant predictors of anxiety level, the needs for freedom and fun are not significant predictors. According to the standardized Beta regression coefficients, the relative importance of the predictor variables on the level of anxiety is the need for freedom ( $b = 0.071$ ) and the need for fun ( $b = 0.107$ ).

## 3.2 | Qualitative research

In the qualitative part of the research, the theory-based analysis method was used. As a result of the interviews with the students, the students' views related to meeting their basic psychological needs were gathered under four themes in line with the results obtained from the content analysis. These themes were stated as the need for power, love and belonging, fun and freedom.

### 3.2.1 | High school students' power needs in the COVID-19 period

Three subcategories were created for this theme: "Success achieved," "Level of meeting the need," and "Alternatives." In the category of success achieved during the pandemic period, there are the opinions of the participants who spent their time reading different books and contributed to their personal development during this period, as well as the participants who spent the time gap created by the closure of schools by studying and getting support on the missing issues. On this subject, P1 expressed, "I read a lot of books during this period, I think that reading books contributed to my personal development, only this could be done during this period, what else could be done? A person who could not go out during the pandemic period could only feel better like this." Similar to this statement, P6, P3, P8, P12, P14, P17, and P22 stated that they tried to make up for their deficiencies in courses and educational issues. Regarding success, being active on social media and improving oneself in computer games, P13 stated, "I got better at computer games. Since it was an online game, there was no need for face-to-face communication. I leveled up in the games, my recognition increased." During this period, there were participants who declared that their



success in a foreign language, talent and sports increased. P16 expressed, *"During this period, I stayed at home and studied language. There are applications on social media. For example, there is Cambly. I talked to strangers through them. At first, I was too shy to speak. Then it was pretty good for me. If there is school, there is no time; it's always a flurry of exams. I still continue to use this application."* Similar answers related to foreign language and skill development were also given by P11, P3, P19, P24, and P29. There were also participants who stated that they could not find anything that could be described as "success" in this period. P8 stated, *"I don't feel successful because we couldn't see anyone, we were away from our friends, there was no social communication, how can we consider ourselves successful?"* Similar answers were given by P15, P12, P11, P9, P2, P20, P23, P25, P18, and P28.

Level of meeting the need for power, 14 participants out of 29 responded as adequate, 4 participants responded as moderate, and 11 participants replied as insufficient. Answers given to the category with alternatives suitable for meeting the power need at a higher level, it is seen that the answers to guidance, support, open schools and study centers are more coded. For example, P17 stated, *"If guidance and mentoring were provided especially by our teachers during this period, it would be very good. We had exams. We were confused. During this period, we could be helped in terms of motivation. You are talking to me now. You are asking me questions that have not been asked before. Just talking made me feel better. I wished there had been someone who helped, gave morale, or directed me at that time."* Different from these answers, there were also participants who declared that schools, study centers and sports halls should be open. P3 expressed, *"I wished the school had been open and we had seen our friends. Because with them, we know whether we are successful or not, for example, you are good at something, but you will feel better if they praise you. Therefore, if the schools were open."* P12, P8, P14, P11, P9, P6, P3, P2, P19, P20, P21, P22, and P29 gave answers related to school. There were also participants who were satisfied with the period of staying at home. P10 stated, *"We were at home, there was no school, I think it was fine. You don't have to get up in the morning, play the computer without limits, let the food come to you, what more can I ask from God."* P25 and P27 also gave similar answers. There were also participants who defined family pressure as an obstacle to the need for power during this period.

### 3.2.2 | High school students' need for fun in the COVID-19

Three subcategories were created for this theme: "Pre-Pandemic Fun," "Pandemic Period Fun," and "Alternatives." In this category, there are the opinions of the participants who stated that they went to places such as shopping malls, cafes, and spent time with friends there, and the opinions of the participants who stated that they spent time outside or that they engaged in watching movies, computer games and social media. There were also participants who did sports and played football with their friends before the pandemic. Looking at the answers given according to the determined codes, P8 stated, *"We used to hang out with friends, play football, chat."* A total 18 of 29 participants used the theme of spending time outside with friends, chatting for fun. Participants, P1, P26, P21, and P19 used the family code in the prepandemic entertainment category. One of the participants, P10, expressed, *"I used to play with my cat, computer games, hang out on social media."* Similarly, P13 included the element of fun independently from social media and others. In addition, P15 stated, *"I would play a match, go to the astro pitch with friends, play football."* and similarly, P14, P8, P25, P22, and P19 gave answers about doing sports. In the fun category of the pandemic period, appropriate answers were given to the codes such as watching movies/series, spending time with family, social media/computer games, video chatting with friends, and boring life. P6 stated, *"I watched movies, there are funny videos on YouTube. I watched them, talked with friends, laughed a little, and played online games."* Similarly, P17, P16, P9, P5, P13, P27, P21, and P23 gave answers about social media and computer games. P8 expressed, *"I spent time with the family, we watched movies, and we made TV series for ourselves."* P1, P19, and P24 gave similar answers to the theme of spending time with the family. There were also participants who stated that this period was boring. P14 stated, *"I couldn't do anything, I just sat idle. What was there to have fun with? While school is closed, there are no friends, everything is limited."* P13, P27, and P25 gave similar feedbacks to this statement.

When the answers given to the category with alternatives suitable for meeting the fun need at a higher level are examined, it is seen that the answers to the lifting of the weekend ban, the possibility of meeting friends face-to-face, schools, gyms and shopping centers are more coded. There are also participants who stated that they were satisfied with their life during the pandemic period. P9 expressed, *"The permission to go out could have been more, or it could have been completely free on the weekend."* P2, P1, P9, P14, P7, P21, and P22 gave similar themed answers. P3 stated, *"If the school had been open, at least one day at that time would have been enough for us. We would have seen our friends. We would have had a little fun."* In this question, most of the participants used the theme of schools' being open, friends and outdoor activities. P25 expressed, *"We stayed at home with the family, it could have been better. We could have done more fun things."* P9, P5, P13, and P19 gave feedback on the theme of spending quality time with the family. It can also be mentioned that there are participants who have a social environment or have the opportunity to meet their friends because they live in a site during the pandemic period. P1 stated, *"I think everything was good, it was quite fun, we had a good time with my family, we watched movies, we laughed, we had fun, I also talked to my friends on the phone. Some are in our site. We visited each other within the site."*

### 3.2.3 | High school students' need for freedom in the COVID-19

Subcategories were created for this theme: "Limitations," "Activities without restrictions," "Alternatives." In the category of restrictions during the pandemic period, coded answers were given for life with family, living in crowded families, lack of personal spaces, the results of the measures taken due to the pandemic, schools' being closed, not being able to spend time with friends face to face and no restrictions. On this subject, P1 stated, *"I read a lot of books during this period; I think reading books contributed to my personal development, I think that only so much could be done during this period."* P17 expressed, *"Living with the family was a limitation, the phone, what you watched, sharing the room with your brother were all different restrictions. I was crazy during this period. How many people are at home all the time, you can't go out, you can't do anything?"* P13, P7, P5, P4, P2, P3, P27, and P28 similarly stated that they had restrictions related to family. In addition, there were also participants who stated that they experienced restrictions due to the pandemic itself. P29 stated, *"To me, not being able to meet friends, not being able to go out, and not being able to go to school were the biggest restrictions of freedom."* Most of the participants gave similar answers. There were 2 participants who declared that they did not experience any restrictions.

In the category of activities without restrictions during the pandemic period, participants gave answers using the codes of watching matches, engaging in activities that support personal development, computer games, social media and watching TV series or movies. K15 said, *"I watched matches; I could not play football, due to the conditions at home. It was also enjoyable to watch old matches."* P14, P12, and P19 also mentioned that they did sports-related activities in the same way. P17 stated, *"I read a book, took tests, and spent time on social media."* Most of the participants expressed that they read books, watched TV series or movies, and could engage in activities such as listening to music, drawing pictures, and were interested in a foreign language during this period. P17 expressed, *"I read books, took tests, spent time on social media."* Two of the participants stated that they had the COVID-19 disease with their families during this period. For this reason, they said that they experienced a period when their freedom was restricted at the highest level. Two participants stated that they did not experience any restrictions during this period.

When we look at the answers given to the category with alternatives suitable for meeting the need for freedom at a higher level, it is seen that the answers to the abolition of the ban on going to school, reduction of family intervention, and increased access to the internet are more coded. P13 expressed, *"If my family had not interfered, I had gone to school, if there had been no pandemic."* Similar answers were given, except for two of the participants. In addition, there were some respondents who stated that they felt constrained because they could not access the internet at a sufficient level.

### 3.2.4 | High school students' need for love and belonging in the COVID-19 period

This theme consists of three categories: "The person who is in contact and supports the most during the pandemic period," "The level of meeting the need for love and belonging," "Alternatives that can be created to better meet the need for love and belonging." In the category of people who are in contact and support the most during the pandemic period; participants stated family, friends, teachers, social media and playgroups. Similar answers were also given about support. On this subject, P4 expressed, *"We saw our family the most during this period. We were away from our friends. We had video chats on the phone."* Differently, there were also participants who expressed that they were in contact with the teachers. P22 stated, *"We were in constant contact with teachers. They taught lessons in the form of distance education, and they solved our questions."* P28, P11, and P6 also expressed similar answers. In addition, P29, P7, P5, and P4 described the people they met on social media as the people they had the most contact with. Participants gave similar responses related to the people they received the most support during the pandemic period. P5 expressed, *"During this period, we had to spend time with the family. We talked more with the family. Normally, I don't see my father much. His work is very busy, but he was at home during the pandemic. My bond with my father has grown even more. Normally I thought he was very oppressive. In this period, yes, he was angry again because of his work because I think he lost a lot, but he was very interested in my lessons. It helped me a lot with the follow up. We found lecturers on Youtube. I can say that we studied together. This has been very good for me."* Four participants answered this question as friends on social media and groups in computer games. Considering the answers given to the category in which there are alternatives suitable for meeting the need for love and belonging at a higher level, there were complaints about the feeling of loneliness being experienced more. In addition, it is seen that such answers as more conversational environments can be created; better quality activities with the family, opening schools, spending time with friends, and life satisfaction are more coded. P20 stated, *"I think there was no need for anything extra, being with family was the best thing anyway. My family was always uplifting at that time, it was exam time, our exams were canceled but my family always supported me, so I think the love I got at that time was enough."* P28, P21, P10, and P8 gave similar replies. In addition, P17 stated, *"Guidance could have been given, support and motivation could have been provided. We could have been told what we should do during this period and how we should use this period."* Four participants gave similar answers about guidance. The students' views on their anxiety levels were gathered under a single theme in line with the results obtained from the content analysis. Three subcategories were created for this theme: "Degree of anxiety," "Concerning situations," "Positive effect." In the category of the degree of anxiety, certain points were obtained in line with the answers given by the participants. A total of 11 participants gave 7 points, 8 participants gave 6 points, 3 participants gave 8 points, 3 participants gave 5 points, 1 participant gave 3 points, 1 participant gave 2 points, 1 participant gave 10 points, 1 participant gave 9 points. In the category of concerning situations, most of the participants gave such answers as contracting the disease, a family member contracting the disease, harming a family member, fear of losing, "Will the pandemic always continue?" 4 participants stated that they experienced anxiety about exams. P8 expressed, *"My family followed the rules, I paid attention at home, I studied for my exams, I had a good time at home, I said this pandemic would end somehow. So I didn't have much anxiety."* Similarly, P11 stated, *"We did not go out much. How would we have contracted the disease? I did not have any anxiety over contracting the disease or something else."* The codes created for the category related to the factors that have a positive effect on reducing the degree of anxiety were generally associated with the fun factor. Most of the participants gave answers related to the themes of social media, video chat with friends, spending time with family, computer games, reading books, and watching movies. Some of the participants also stated that they did activities that contributed to the development of sports and skills.

## 4 | DISCUSSION

In this section, the findings of the quantitative and qualitative dimensions of the research conducted to examine the relationship between anxiety and psychological needs of high school students are interpreted.

## 4.1 | Quantitative research

It is seen that the need for freedom of the female students during the pandemic period is met less than males. Looking at the different studies conducted during the pandemic period, it can be stated that the gender variable has similar effects (Sever & Özdemir, 2020). In the prepandemic studies, there were findings that psychological needs of female students were less met (Gündoğdu & Yavuzer, 2012; Kaya & Sari, 2016). It is thought that this finding obtained from the research is related to the culture in which one lives. The finding that the need for freedom is less met in female students can be said to be restricted by the culture (disadvantaged regions) in which they live. In general, when all groups are examined, it is determined that the least fulfilled need is the need for freedom. The measures and bans taken during the COVID-19 pandemic period may have caused this situation. Findings related to the need for love and belonging are remarkable. According to the data, it was found that the need for love and belonging of the participants with a low monthly family average income was met less than the other groups. This need is met the highest among the participants with high income. According to the data on this subject, the findings related to the need for love and belonging are similar to the results of previous years in that families with a higher socioeconomic level have more democratic parental attitudes and that the negative parental attitude decreases with the increase in the socioeconomic level (Cihangir & Haktanir, 2000; Uyanık Balat, 2007). Similarly, studies conducted during the pandemic period, it has been found that there is an increase in violence against children and adolescents due to the financial crisis and similar reasons in families with low income (Jiao et al., 2020; Petito et al., 2020). Based on this result, it can be thought that the need for love and belonging is one of the most neglected needs. Likewise, Ashikkali et al. (2020) obtained results indicating that the importance given to children's mental health remains in the background in low-income families. Differently, Türkoğlan and Duru (2012) argue that the difference in the level of meeting the love and belonging needs of students who report low monthly income of their families cannot be directly attributed to economic reasons; however, they state that some relational situations, such as parental attitudes, which are shaped by socioeconomic conditions in students' relationships with their families, may have an impact on students' perceptions of the need for love and belonging.

It is seen that the basic psychological need level of high school students is affected by the education level of their mothers. The lowest scores of the participants with mothers with "graduate" education can be interpreted as a sign that psychological needs are met at the lowest level. When the result is also evaluated in terms of pandemic period studies, the finding that the basic psychological needs of the children of "graduate and university graduate" mothers are met at the lowest level may be related to the fact that mothers who bring work home as a result of "stay at home" calls or who try to manage work and home together due to flexible working hours are overwhelmed by stress and cannot spend enough time with their children (Crescentini et al., 2020). In another result, it is seen that the level of meeting the basic psychological needs of the students who declared that they did not have a relative who was treated in the hospital due to COVID-19 was higher. Based on this finding, it can be said that having a relative who is treated for COVID-19 in the hospital negatively influences basic psychological needs. It has been determined that having a relative who is receiving treatment during this period has an effect that triggers negative mental health, especially for female participants (Bourion-Bédès et al., 2021).

While the group with the highest anxiety is the students who do not have siblings, the group with the least anxiety is the students who have six or more siblings. In other words, the high number of siblings during the pandemic period seems to be a factor reducing anxiety and proactive factor for mental health (Mariani et al., 2020; Wang et al., 2020). It was found that the crowded environment at home and the high number of individuals increased anxiety. In addition, the average income level of a family affects anxiety. As the income level increases, a relative upward trend is observed in the anxiety level. The group with the lowest level of anxiety is seen as the group with the lowest income. Although this finding is thought to be a regional result, the result of the research conducted in New Zealand also supports this finding (Every-Palmer et al., 2020). Additionally, in the research conducted in India, an inversely proportional relationship was found between socioeconomic level and anxiety (Saurabh & Ranjan, 2020). There are study data showing that anxiety in children and adolescents increases due to

the problems experienced by poor families and the decrease in financial resources, especially during quarantine (Bruining et al., 2020; Jiao et al., 2020; Petito et al., 2020). It is observed that students who have relatively negative and anxiety-laden thoughts that the epidemic will not end soon have the highest level of anxiety. As the duration extended, findings indicating the existence of an upward trend in anxiety levels were reached. Results of the research conducted in China on the analysis of emotions before and after the announcement of COVID-19 in January, it was revealed that negative emotions were on the rise, while positive emotions decreased, and this triggered anxiety. Considering that the increase in negative emotions drives individuals to despair, it is seen that this result coincides with the finding obtained from the research (Li et al., 2020). In addition, the fact that one or more relatives received COVID-19 treatment affected anxiety levels. Similarly, in a study conducted by Chen et al. (2020) to measure the anxiety and depression levels of adolescents and children, it was observed that symptoms of depression, anxiety and both were found in individuals with relatives who were in quarantine and receiving treatment. On the contrary, in the study conducted by Çölgeçen & Çölgeçen, 2020; no significant difference was found between the groups. In the findings regarding the level of meeting the basic psychological needs of high school students in the COVID-19 period, the final question to be explored is whether the level of meeting basic needs has an effect on anxiety. To answer this question, it is seen that the basic needs show a negative and significant relationship with the level of anxiety. It can be said that this finding indicates that the level of anxiety will tend to decrease as the level of satisfaction of basic psychological needs increases. Although children and adolescents are considered as a vulnerable subgroup, the presence of this situation appears to be a critical problem in the pandemic scenario. Especially in studies conducted on adolescents, it was observed that adolescents who had conflicts with their friends and family members had a high level of anxiety (Golberstein et al., 2020; Schofield et al., 2013).

Within the scope of the findings, when a general evaluation is made regarding meeting the basic psychological needs and anxiety levels of high school students during the COVID-19 period, it is seen that meeting the basic needs of love, belonging and power has a significant role in reducing and controlling anxiety during the pandemic period. Contrary to this situation, it is seen that the need for freedom and the need for fun are not met sufficiently according to the score ranking, which has a negative effect. It can be argued that the role of needs in predicting the level of anxiety during the pandemic period is seen in different dimensions and the need for love and belonging, and the need for power come to the fore during this period, which may be especially related to that high school students had to stay at home and spend time with their family members due to COVID-19 measures. It is thought that issues such as sharing the same house with the family for a long time, an increase in sharing and common activities, and spending time together may have further developed the feeling of loyalty and love to the family. Likewise, the increase in arguments with the family during this period can also be interpreted as the distance from family and the increase in closeness to friends due to factors such as the inability to spend quality time together. During this period, friends may have served as an important source of social and emotional support. Considering that the effects of the COVID-19 period will continue for a long time, the need for love and belonging, especially for adolescents, should be supported to create a successful identity. According to the results of the research, it was found that the least fulfilled need was the need for freedom, but the need for freedom was the subdimension that had the most negative impact on anxiety. This situation is thought to be related to the pandemic period.

## 4.2 | Qualitative research

According to Choice Theory, power needs can be met in different ways. Some of the students who participated in the research stated that the success they achieved in online computer games contributed to their self-confidence. Although this situation is positive, it can also cause negative situations. During this period, situations such as unlimited internet use and spending time on social media may contribute to the power needs of the participants, but may not serve to meet the power needs in a positive way. Social media and unlimited internet use can also be a

method developed by the participants against situations such as boredom, sadness and anxiety due to the pandemic.

The remarkable finding in the answers given is that the students felt the need for motivation and guidance. According to the findings obtained from the research, online psychotherapy programs related to internet addiction and misuse of social media can be applied, and adolescents can be supported through Cognitive Behavioral Therapy (CBT) applications.

When the literature on this subject is reviewed, remote access and telephone support are given as an alternative to face-to-face mental health support services. This practice is implemented in many countries including Turkey (Clemens et al., 2020). When the literature is examined, it has been seen that motivation and live mental health support applied especially during the pandemic period have positive effects (Öğütü, 2020; Sani et al., 2020).

When the pre-pandemic fun subcategory of the theme of fun needs is examined, in the studies conducted, it has been determined that the time spent in front of the screen increases in students who stay at home due to pandemic measures. Some students use it for learning, while some students use it for entertainment and social interaction (Jiao et al., 2020; Vanderloo et al., 2020). Considering that such an increase has positive and negative effects on mental health, families should be careful about the time spent in front of the screen. In addition, this situation seems to be a tool for families to prevent boredom and cope with the lack of social communication. There are studies showing that social media and computer use are effective in meeting the psychological needs of parents and students and controlling the level of anxiety as they provide benefits as means of accessing information, personal development, social connection, identity development and self-expression (Hamilton et al., 2020; Jiao et al., 2020). In this regard, young people can be supported in coping with anxiety, depression and stress through CBT-based applications.

Students expressed problems such as the difficulty of life in a large family, the presence of the pandemic, family restrictions, interruption of social communication and insufficient internet access. Particularly, it is among the findings that the participants living in crowded families need personal space. The limited space and time where individuals can be alone with themselves have been a problem for some participants during the pandemic period, when education is given remotely. There are studies showing that the restriction related to this issue causes anxiety in the participants (Wang et al., 2020). During this period, there were also participants who stated that they did not have a social life before the pandemic, so they did not experience any restrictions in social or any other area. Considering the social support, social communication, and individualization that are necessary for adolescent mental health, it is seen that this situation poses a danger. To the question asked about what can be done during this period without any restrictions, the students gave answers such as reading books, personal development, watching movies and TV series, studying and chatting with the family. Most of the participants stated that they were exposed to restrictions and pressure on social media use and playing computer games. In general, according to the findings about this theme, it is seen that the need for freedom is not adequately met.

The changes in an adolescent's life during the pandemic period have affected this process. The reason for this is that social distance rules, in line with the COVID-19 period measures, caused limited communication with friends. As a result of this, there existed a situation to spend more time with the family. During this period, the process that positively serves to meet the needs of intimacy and belonging may create an insufficient individual-environment element, as the effectiveness of the friend element in social support decreases and independence may inhibit individualization (Oosterhoff et al., 2020). When the questions on the theme of the need for love and belonging are examined, the answers given are interesting. The majority of the participants complained that they did not have the opportunity to meet their friends face to face. Due to the bans implemented in line with the quarantine measures, it is vital for adolescents to spend time with friends face to face, to receive social and emotional support and to share. Participants in social projects expressed their satisfaction with this situation. They stated that the work they did in this process made them feel better. This is considered as a finding that should be reviewed for the pandemic period and beyond (Crone et al., 2020). Problems in families and the reason for quarrels are that families do not show the necessary care about quality time, their being intrusive, and especially following an oppressive attitude about studying (Ari, 2020; Rogers et al., 2020).

During this period, it was observed that the participants who grew up in extended family environments and spent this period in an extended family environment spoke more positively. There were also participants who stated that they spent quality time with their families during this period. It can also be thought that culture has an effect on obtaining this result from the research. It is estimated that strong ties influence the results of a study, especially in societies with extended family cultures or strong networks of relationships. Children who spend time with their elders during the pandemic period are less affected by the process (Bruining et al., 2020; Kepçeli, 2021). In the section of the research where the anxiety levels were defined, the participants scored high and medium while indicating their anxiety levels during the pandemic period. The reasons for high anxiety were fear of getting sick, fear of something would happen to a family member, fear of infecting their loved ones with the virus (Oosterhoff, 2020), fear of being away from classes due to remote access to education (Sahu, 2020), fear of schools' being closed due to longing for school and friends, and experiencing test anxiety due to the cancellation of exams (Lee, 2020). Another remarkable finding in the qualitative study was that participants living in crowded families gave low scores regarding anxiety. In addition, the participants who did not have a social life before the pandemic stated that they did not go out during this period, they did not experience anxiety because they spent time on social media, and they were satisfied with the existence of the pandemic period. It is thought that having an alternative living place and having a place where an individual can stay byself have an effect on this finding (Cao et al., 2020). A similar finding is also valid for the residents of a site. It is thought that the participants living in a site can meet their friends, have the comfort of going out to the garden, and receive face-to-face social support from their friends. Consistent with previous findings, it has been confirmed by research results that social support reduces psychological pressure and serves as a protective factor against anxiety disorders (Chen et al., 2020; Jin et al., 2014). Online platforms could also be beneficial for adolescents to provide social support to each other and to share their problems and resolutions during the pandemic to reduce anxiety, depression and stress levels.

## 5 | LIMITATIONS

In light of the valuable contributions to the literature, this study has some limitations. Research data were obtained through online "Google Forms" due to the COVID-19 period. For this reason, the scale instructions could not be explained by the researcher and were limited to what the participants read and understood. In addition, the inability to set the physical conditions for the participants to fill in the scales was also seen as a limitation. Also, some students' technological inadequacies and problems in accessing resources, insufficient bandwidth, are among the limitations of the research. The study was conducted only on adolescents during the COVID-19 period. Adolescents spent this period at home with their families. They often emphasized their families in their answers to qualitative questions. The fact that families did not participate in the study prevented mutual evaluation. This is seen as a limitation.

## 6 | IMPLICATIONS

Future studies can develop the topic of basic psychological needs and anxiety including different variables and different sample groups. In particular, based on the finding that there is a negative relationship between basic psychological needs and anxiety level, psychoeducational programs related to psychological needs can be created to control the level of anxiety. According to the findings obtained from the qualitative research, online mentoring support can be given to students during the pandemic period. In addition, due to the fact that students' time spent in front of the screen has increased, awareness can be increased by organizing training for families and students on this subject by school counselors. Based on the findings; studies can be conducted on the variables of the research and the relational self, introverted personality and similar structures. In addition, studies related to relational-autonomous self, personal space and privacy, which establish a relationship between culture and the variables used

in the research can be conducted. Particular attention should be paid to qualitative practices in the study of this subject. It is recommended to make a sample change in studies on basic psychological needs.

## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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