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In the eyes of adolescents, is the pandemic an obstacle or a gain? A qualitative study based on the ecological theory

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ABSTRACT

Purpose: This study was conducted to find out how the COVID-19 pandemic affects the lives of adolescents and their expectations about the future.

Methods: Data for the study was collected using a descriptive qualitative research design. The sample included 24 adolescents between the ages of 15 and 17, who were recruited according to the purposive sampling method. The research questions and results were structured according to the Bronfenbrenner's Ecological Theory. Data were collected until saturation was achieved. NVivo 12 program was used to organize the data. The transcribed data were analyzed using the inductive thematic analysis method.

Findings: According to the adolescents' views on the pandemic, were identified twelve sub-themes connected to four main themes and twenty-four metaphor themes in accordance with the Ecological Theory. These were (a) Microenvironments, (b) Education and social life, (c) Ecological lifestyle, (d) Future expectations, and (e) metaphor themes about COVID-19. Moreover, adolescents reported negative opinions on all metaphors.

Implications for practice: The restrictions applied as measures of control to the global pandemic mostly negatively affected the family and peer relations of adolescents, their academic and social lives, and their expectations about the future. This study demonstrates that it is possible to monitor the psychosocial development of adolescents according to the Ecological Theory.

Implications for research: Similar studies may be conducted based on the Ecological Theory to evaluate the development of adolescents after the pandemic.

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Starting from 2019 the coronavirus SARS-CoV-2 infection (Cinesi Gómez et al., 2020), which causes the disease called COVID-19, has caused a global pandemic (WHO, 2020). While this disease has directly affected the elderly due to respiratory infections (Cinesi Gómez et al., 2020; Zhang et al., 2020), it has indirectly affected children and adolescents (Bahn, 2020; Szabo et al., 2020). Studies show that adolescents are in danger of experiencing adverse consequences for both mental and physical health as a result of the pandemic (Brown et al., 2019; Leser et al., 2019). With the closure of schools combined with additional socio-behavioral measures (social distancing, quarantine etc.), the lifestyle of adolescents was interrupted (Margaritis et al., 2020; Vanderloo et al., 2020). During this process, studies indicated that adolescents' leisure activities such as sports and games decreased (Guan et al., 2020; Zenic et al., 2020) and their sleep patterns were disturbed (Bates et al., 2020). Adolescents reported that their negative emotions increased, their positive emotions decreased, their close relationships with their families limited their personal space and they felt like they

were imprisoned. Moreover, they were disappointed in their opposite-sex friendships and received less support from their friends (Chen et al., 2020; Rogers et al., 2021). They also indicated that they were confused about the future and felt helpless (Ellis et al., 2020; Rogers et al., 2021).

In this study, Urie Bronfenbrenner's ecological theory was used as the conceptual framework to identify adolescents' experiences with the Covid 19 pandemic. The Ecological Theory focuses on all the relationships that affect the growth and development of the child, which is positioned at the center. During the pandemic, the lives of children were affected in many ways.

The ecological theory

Urie Bronfenbrenner asserts that human development is strongly shaped by the conditions and events that occur in the historical period in which the person lives and discusses the development of the child in five interwoven systems (Bronfenbrenner, 1979; Bronfenbrenner & Evans, 2000; Bronfenbrenner & Morris, 2006). These five systems are defined as the microsystem, mesosystem, exosystem, macrosystem and the chronosystem. Since these five systems are interrelated, the

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impact of one system on a child's development depends on its relationship to other systems. The framework of the theory consists of four components: Namely, process, person, context, and time (Bronfenbrenner, 1979; Bronfenbrenner & Evans, 2000; Edinete & Tudge, 2013). In other words, the two-way relationship between the child and its environment focuses on the time, the individual characteristics of the child, and the quality of the interaction with the closest people.

As some studies indicate that curfews, long-term school closures, and staying at home with their families during the pandemic may have a detrimental effect on the physical and psychological health of adolescents (Brooks et al., 2020; Wang et al., 2020), the present study was conducted to reveal how the COVID-19 pandemic affects the lives and future expectations of adolescents in Turkey. The research questions were based on the Ecological Theory (Bronfenbrenner, 1979; Bronfenbrenner & Evans, 2000). This article is focused solely on reporting the interview findings regarding the experiences of adolescents during the COVID-19 pandemic.

Method

Design and setting

This study was conducted using a descriptive qualitative research design (Bradshaw et al., 2017). The authors considered and followed the Consolidated Criteria for Reporting Qualitative Research (COREQ), which was designed to encourage clear and comprehensive reporting of qualitative work (Tong et al., 2007).

Participants

The sample of the study was designated according to the purposeful sampling method (Patton, 2015). Participants consist of 24 adolescents between the ages of 15 and 17 living in Antalya, which is a city located in the southern region of Turkey. The snowball sampling technique was used to recruit participants. This is a common sampling technique in qualitative research, where the researcher does not directly recruit participants, but contacts others through a few participants (Parker et al., 2019). The e-mails of the adolescents were obtained from a family health center located in the city center. Adolescents who were eligible for the study were invited to participate by an e-mail. Three adolescents who responded positively to the email were recruited, and they were asked to forward the same email to their peers. Recruitment was stopped when names began to recur and data saturation was reached.

The criteria for inclusion in the study were: (a) being between the ages of 15 and 17; (b) being able to communicate in Turkish; (c) participating voluntarily; and (d) obtaining parental consent.

Data collection

A data collection strategy based on individual ($N = 24$) and online interviews was applied to obtain participants' in-depth perceptions and experiences of the COVID 19 pandemic (Grove & Gray, 2018). The interviews were conducted between October–December 2020 using semi-structured and open-ended questions. Seven semi-structured questions about COVID-19 were designed: How adolescents define COVID-19; how the epidemic affects their social life, school life, and family life; whether they experience anxiety and fear about COVID-19; how they cope with this anxiety and fear; how the epidemic will affect their future and their expectations about life and the metaphors they produce about the disease. Potential sources of bias were minimized by seeking expert opinion to evaluate the meaning, purpose, and scope of the qualitative interview questions. In addition, a personal information form containing the descriptive characteristics of adolescents, prepared by the researchers in line with the literature, was used (Buzzi et al., 2020; Fegert et al., 2020; Liang et al., 2020; Masten & Motti-Stefanidi, 2020). Adolescents were interviewed privately once

by the same researcher with online cameras turned on. The adolescents were asked to fill out a personal information form by the same researcher before starting the interviews. The interviews lasted an average of 30 min in the adolescent's home and in a room of their choice. The interviews were digitally recorded in computer with the consent of the participants and transcribed verbatim.

Ethical considerations

Approval for the study was obtained from the Ministry of Health Scientific Research Platform (Turkey). Ethics committee approval was obtained from the University Clinical Research Ethics Committee. Before data collection, written and verbal consent was obtained from the participants and their parents, and they were fully informed about the aims and procedures of the study and the necessity of voice recording. The researchers declared that participants' identities and voice recordings would be kept confidential and that their subjective data would be used only for scientific purposes. To ensure anonymity, each adolescent was given a unique number between 1 and 24. Participants were informed that they had the right to withdraw at any time up to the point of data analysis.

Data analysis

Bronfenbrenner's Ecological Theory was used as a framework for identifying themes that describe what adolescents are going through during the COVID-19 pandemic. The authors transcribed the interview data verbatim, then checked all transcripts and compared them with the original computer recordings (Lindgren et al., 2020). The content of the text was coded independently by two researchers. The researchers used the systems of the ecological theory as the framework when coding the data. Later, the two researchers came together to compare the inconsistencies, similarities and associations in the codes and discussed them throughout the analysis process to reach a consensus. Finally, main and sub-themes were identified according to the ecological theory. The themes identified were reviewed by two independent researchers (qualitative research specialist and pediatric nursing specialist) and the validity, reliability, transparency and rigor of the thematic content analysis were verified (Maher et al., 2018). In addition, kappa analysis was performed for internal reliability (0.860), and it was seen that there was a good level of agreement between the coders (Landis & Koch, 1977). NVivo 12 program helped organize the data analysis and the analysis of the data was inductive.

Validity, reliability and rigor

To ensure that the process was reliable, the researchers followed four criteria; credibility transferability, dependability, and confirmability (Maher et al., 2018). To ensure rigor in this research, all qualitative interviews were conducted by the authors. The adolescents and the author did not meet before the data collection interviews. Before starting the analysis, the coders identified and expressed any personal experiences, biases, and assumptions that could affect the data analysis (Creswell & Creswell, 2017). Great emphasis was placed on using a systematic approach during coding to increase the reliability of the thematic analysis. The researchers contributed to all phases of the analysis to increase internal validity. The themes were supplemented with quotations from different adolescents to increase confirmability.

Results

The adolescents consisted of 13 females and 11 males aged 15–17 years. Their average age was 16.4 years (standard deviation: 1.25). About half of the parents of the adolescents had a university degree, about half of them had a medium income, and most of the adolescents had a sibling. Moreover, more than half of the adolescents did not take

vitamins and mineral supplements, most of them refrained from going out during the pandemic, and half of them got information about COVID-19 from the internet. The demographic characteristics of the adolescents are detailed in Table 1.

Themes

Qualitative data were synthesized and four main themes and eighteen sub-themes (Table 2), as well as twenty-four metaphor themes (Fig. 1) were identified. The opinions mentioned by adolescents regarding the pandemic were allocated to the following main themes: (a) Microenvironments, (b) Education and social life, (c) Ecological lifestyle, (d) Future expectations, and (e) Metaphors about COVID-19.

Main theme 1: microenvironments

The adolescent’s microenvironment corresponds to the microsystem of the Ecological Theory. The microsystem, which has the greatest impact on the development of the individual, basically includes the family and friend groups. According to the Ecological Theory, the adolescent is in the center of this system and the daily life interactions and experiences of the adolescent enable his/her development and self-discovery. The influence of the microsystem on the development of the adolescent also shapes his/her relationships with other systems (Bronfenbrenner, 1999; Bronfenbrenner & Evans, 2000). In this study, adolescents reported that they discovered themselves while experiencing complex emotions such as fear and coping, impairment, and strengthening of family interactions.

The first main theme consists of four sub-themes: the fear of death, coping with COVID-19, family interaction, and self-discovery. Each sub-theme represents different aspects of change in the adolescent, family, and immediate environment.

Table 1
Socio-demographic characteristics of adolescents.

Adolescents	Number (n)	Percent (%)
Age		
Average age	16.4 ± 1.25	
Sex		
Female	13	54.3
Male	11	45.7
Mother’s education status		
Illiterate	2	8.4
Primary	5	20.8
High school	5	20.8
University	12	50
Father’s education status		
Illiterate	1	4.2
Primary	3	12.5
High school	5	20.8
University	15	62.5
Family income situation		
Income more than expenditure	8	33.3
Income equal to expenditure	14	58.4
Income less than expenditure	2	8.3
Number of siblings		
0 (only child)	3	12.5
1	17	70.8
3	4	16.7
Taking vitamins and mineral supplements		
Yes	9	37.5
No	15	62.5
Going out during the pandemic		
Once a week	4	16.7
Never	20	83.3
Information resource about COVID-19		
Television	7	29.2
Internet	13	54.1
Television and internet	4	16.7
Information time		
Average time	38.3 ± 39.14	

Table 2
Themes and sub-themes of study.

Themes	Sub-themes
Microenvironments	<ul style="list-style-type: none"> • The fear of death • Coping with COVID-19 • Family interaction • Self-discovery
Education and social life	<ul style="list-style-type: none"> • Change in academic life • Restriction of social life
Ecological lifestyle	<ul style="list-style-type: none"> • The value of life • Nature’s reaction • Collapse of the economy • Lockdown of life • Concern for future
Future expectations	<ul style="list-style-type: none"> • Hope

Sub-theme 1: The fear of death.

Adolescents shared their fears about this period. They expressed that they were afraid of death, especially for their family and close friends and also for themselves.

‘I fear of my family, loved ones, friends or myself being infected with covid, sometimes I fear I will lose someone I love very much (P13).

‘I fear because so many people are dying. I am afraid of being sick and not being able to breathe’ (P22).

Sub-theme 2: Coping with COVID-19.

The interviews implied that adolescents have developed some positive and negative coping methods during this period.

‘I am trying to protect myself from the virus. Washing my hands, having a mask on my face and observing social distance make me relax.’ (P15).

‘I try to lock myself in the room and ensure my isolation’ (P18).

Sub-theme 3: Family interaction.

Adolescents shared their positive and negative experiences regarding family relationships.

‘We had a long time together as a family, albeit unintentionally. This strengthened our family ties’ (P1).

‘Everyone in my family has found new pursuits to spend their free time on. When the stress of work and school did not affect our home life, I started to get on better with my family’ (P21).

‘Fights increased because we were always together with our family’ (P14).

Sub-theme 4: Self-discovery.



Fig. 1. Metaphors about COVID-19.

In our research, one adolescent indicated that social isolation allowed them to discover themselves.

'I think absolutely, because I had a long time to discover myself, so the me of three months ago and the me of now cannot be the same' (P24).

Main theme 2: education and social life

The interruption of the interaction between systems of the Ecological Theory due to the restrictions applied during the pandemic adversely affected the academic life, friendships, hobbies and leisure activities of the adolescents.

Sub-theme 1: Change in academic life.

When the opinions of adolescents on the pandemic were questioned, it was found that online education was new to most students, and most of them reported negative opinions especially about this sudden transition. Their opinions on this theme are given below:

'My school life and my preparation for university were interrupted, so I was psychologically affected; I was extremely stressed' (P13).

'It was far more difficult to adapt to lessons from home. So when I was at school, I understood better' (P16).

Sub-theme 2: Restriction of social life.

Most of the adolescents mentioned that their social life was limited, and they could not pursue leisure activities.

'A negative experience where my freedom was restricted... I can't go to basketball practice that I normally go to regularly and I can't spend time outside with my friends' (P18).

'When we went out, we did not cuddle or even kiss when we said goodbye to our friends' (P2).

'I do not leave the house and my social life has completely turned to the virtual world' (P4).

Main theme 3: ecological lifestyle

The meaning of ecological life for the individual is to lead a respectful life in harmony with nature and environment. Although the components in the macro and exosystem of the ecological theory do not directly affect the development of the child, they determine the environment in which the child lives and create an indirect effect on his/her development (Bronfenbrenner, 1995).

The changes caused by the pandemic in the exosystem and macrosystem of the Ecological Theory have created changes in the values of the adolescents, who are positioned at the center of the theory.

Sub-theme 1: The value of life.

Adolescents commented that they understood the importance of their daily life cycle during the period of restrictions.

'When everything is over, I will live with the awareness of how important and valuable most of the activities I do in my daily life (taking the subway, traveling, etc.) are actually... Walking outside without fear, even going to the market is very valuable for me' (P13).

'I realized that most of the expenses we make in our daily life are unnecessary, that the plans made are not always valid, and that we can live in a much more minimalist way' (P5).

Sub-theme 2: Nature's reaction.

The fact that the pandemic is on a global scale and has lasted for a long time has led adolescents to question COVID-19 and search for a cause-and-effect relationship. They expressed their opinions on this issue.

'I think we pay a price for being unconscious people, for harming nature, animals, and the environment, and for using all-natural resources too wastefully' (P13).

'It is nature's response to the growth of the human population, to our chaotic and incessant population increase' (P4).

Sub-theme 3: Collapse of the economy.

Adolescents expressed the negative effects and causes of the pandemic on the economy.

'A great massacre that engulfed the world, a plan based on the economic collapse that I think was done on purpose' (P17).

'COVID-19 is affecting the world in many ways right now...economically, legally, and psychologically' (P 24).

Sub-theme 4: Lockdown of life.

Adolescents stated that the restrictions in social life stopped them from living their lives, and this caused uncertainty.

'I cannot go outside. My body is not aware that it is alive' (P21).

'After all, the whole world is locked down' (P7).

Main theme 4: future expectations

The fact that the pandemic is global and affects all areas of life has also had a great impact on the chronosystem, the last system of the Ecological Theory. This study demonstrated that despite the uncertainty and worry experienced by the adolescents about their future, they were still hopeful.

Sub-theme 1: Concern for the future

Some adolescents expressed their concerns about the future due to uncertainties.

'I will never forget that we are going through a difficult time; it will affect my future' (P19).

'I think it will be a lost year and affect my future by taking a year from my life' (P20).

'I don't know at all what awaits us in the future; maybe that's what I'm most afraid of...It takes a lot of things from the world...' (P9).

Sub-theme 2: Hope

Some adolescents had optimistic outlooks. They expressed that they were hopeful and that this period would lead to new opportunities.

'The number of people in the world is decreasing. In the future, job opportunities will increase' (P12).

'The fact that countries help each other shows that their relations can improve in the future' (P15).

Main theme 5: metaphors about COVID-19

The metaphors produced by the adolescents participating in the study related to COVID-19 are listed in Fig. 1. Although adolescents reported both positive and negative opinions about the pandemic, they all produced negative metaphors. Metaphors are classified as the animal, plant, technology, object, abstract concept, nature and the other. Some opinions on metaphor groups are given below:

Animal.

One adolescent produced the metaphor of **Cerberus** and explained the reason as 'I liken it to Cerberus, the hound of Hades in Greek mythology, as if it were an animal' (P2). One adolescent used the metaphor of the **sea urchin**. The participant explained this as 'because it looks like sea urchin, both of them are harmful, prickly on the outside, rough' (P14). One participant produced the **chameleon** and expressed it as 'I liken it to the chameleon, because it constantly changes color, that is, it mutates' (P20).

Plant.

One participant produced the **baobab** metaphor and explained this as 'I used to liken it to the baobab plant. From what I read in The Little Prince, it wouldn't be a problem if it was cut while it was a sapling, but I think people were careless and allowed it to grow. I think if no measures are taken, it will be the plant that will cover the entire planet' (P21). Another adolescent produced the metaphor of the **cactus** and said 'I would liken it to a cactus. I liken the COVID-19 virus to a cactus because it hurts anyone who touches it' (P5).

Technology.

One adolescent used the **terminator** metaphor. When asked why, the participant said, 'They are both programmed to murder their own world' (P3). Another adolescent produced a metaphor that linked COVID-19 with the **final level monster** (of a video game) and expressed this as 'Level end boss' (P10).

Object.

One adolescent, used the **black mirror** metaphor about COVID-19 and stated, 'We made the world this way' (P13).

Abstract concept

One participant explained using the **punishment** metaphor and said, 'It is a frightening and annoying situation that makes you depressed, as if we are experiencing the consequences of all evils' (P11).

Nature.

One participant made a connection between COVID-19 and the **sun**. The participant said, 'It looks like the sun, because nobody wants to get too close to the sun (in order not to get burned). But at the same time, its light is strong enough to cover the whole earth' (P16).

Other.

One participant used the metaphor of **acne**. When asked why, the participant explained that 'it is very unpleasant and undesirable' (P6).

Discussion

This study was conducted on the basis of Urie Bronfenbrenner's Ecological Theory in order to determine the psychosocial effects of the COVID-19 pandemic on adolescents. No study was found in the literature based on this theory. Since this study is based on the Ecological Theory, it may contribute to the literature as it reveals not only the views of adolescents on their microenvironment but also on other systems that affect them. (Fig. 2). Moreover, the metaphors produced by adolescents regarding the pandemic were also included in the study.

Main theme 1: microenvironments

This system covers the pattern of activities, social roles and interpersonal relationships experienced by the adolescent developing in a face-to-face environment with certain physical, social and symbolic characteristics. Closed environments such as the home, the peer group, and the school where the developing individuals live and the direct

interactions, they develop in these environments are important microsystems (Bronfenbrenner, 1979).

In our study, most of the adolescents mentioned about their anxieties and expressed their fear of death for themselves and their loved ones. It was demonstrated in the literature that the pandemic has created many new stressors due to sudden and unprecedented changes in adolescents' lives, accelerating the already increasing risk of anxiety and depression (Chahal et al., 2021; Crescentini et al., 2020; Loades et al., 2020; Racine et al., 2020; Whittle et al., 2020). Parental health, fear of death, separation from friends and closure of schools increase the feeling of insecurity in adolescents. In a study, it was found that being infected by someone from the family or outside the family during the COVID-19 pandemic was a risk factor, while living with a family with a stable financial income was among the protective factors against anxiety (Cao et al., 2020). In another study, it was demonstrated that the fear levels of young people about COVID-19 were significantly higher than those of adults (Kocak et al., 2021). "Stay at home" orders, social distancing rules, school closures and other measures mandated by the government have disrupted the sense of normalcy. These led to feelings of isolation, fear, and anxiety among adolescents who develop a sense of autonomy and often depend on their social connections to form an understanding of themselves (Steinberg & Morris, 2001). These findings support the findings of our study.

Adolescents who expressed their fear about COVID-19 in our study also mentioned their opinions on ways of coping. Similarly, in a study conducted in three different countries, it was demonstrated that adolescents used various coping strategies during the COVID-19 pandemic, such as accepting what is happening, emphasizing the advantages of being at home, and acting as if nothing happened (Orgilés et al., 2021). In another study, it was found that adolescents made an effort to respect the rules in force, planned their daily routines, and used various coping strategies such as doing different activities than before, like cooking, playing video games, reading books, and playing board games (Pigaiani et al., 2020).

In our study, the theme of interaction within the family emerged as another sub-theme. Adolescents shared their positive and negative

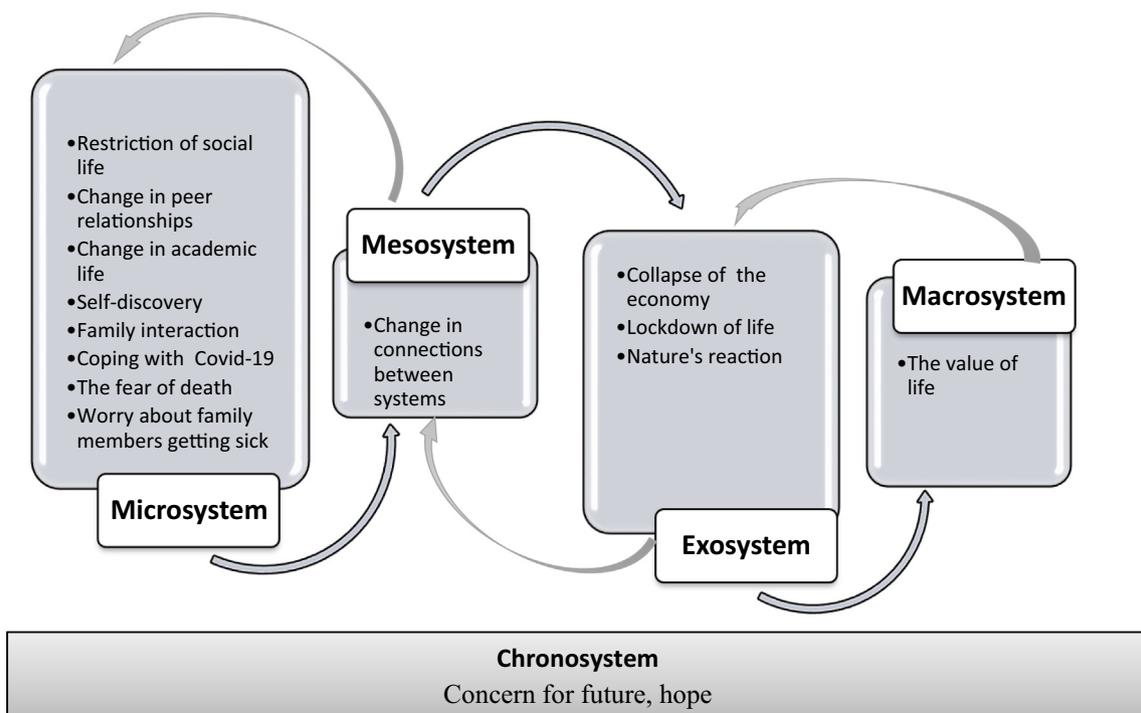


Fig. 2. Potential changes in the lives of adolescents according to Ecological Theory.

experiences about family relationships. In a similar study, it was found that adolescents felt it difficult to stay at home and fighting emerged (Pigaiani et al., 2020), while in another study, it was demonstrated that the quality of parent-child relationship and family satisfaction decreased (Hussong et al., 2022). These studies indicate that during the pandemic, significant changes have occurred in the microsystem of adolescents and in their family and friend relationships. It seems that these changes have had an impact on the psychosocial development of adolescents.

Main theme 2: education and social life

In our research, most of the adolescents reported that they experienced unhappiness and uncertainty due to the change in their academic life caused by the ongoing COVID-19 pandemic and that their social lives were restricted. Similarly, in a study conducted in India, it was demonstrated that limited classroom interaction and an inefficient schedule significantly affected the satisfaction levels among students. In addition, it was found that half of the students could not use their time well during the quarantine period, and their sleep habits, daily exercise routines, social interactions, and health status were significantly affected (Chaturvedi et al., 2021). In another study conducted in the United States, three-quarters of adolescents expressed that the worst situation during the pandemic was limited social opportunities (Cockerham et al., 2021).

The mesosystem of the Ecological Theory refers to the connections and processes that occur between two or more microsystems. It is also defined as a relationship that bridges two micro-systems in the life of the developing individual. School-family and peer group-family relationships are included in this system (Bronfenbrenner, 1979). One of the most specific changes in the adolescence period is the shift of the center around which the adolescent's world revolves, from the family to the peer group. Adolescents must orient towards peers to a greater extent than at previous developmental stages in order to achieve independence from their parents. Peer orientation is an important and healthy new stage in the development of children (Brown & Larson, 2009). Since the relationship (school, peer) of more than one microsystem defined by the ecological theory takes place online during the COVID-19 pandemic, various disruptions are experienced in these systems. Since schools represent the area where adolescents socialize most frequently, closing schools and social areas and banning face-to-face meetings have unfortunately been important changes that have affected the development of adolescents.

Main theme 3: ecological lifestyle

In our study, adolescents questioned the meaning of life during the pandemic and expressed the reaction of nature, the collapse of the economy, and the restriction of life. All these sudden changes in the macrosystem surrounding adolescents have caused them to question both themselves and the factors in the macrosystem. Since the COVID-19 pandemic was announced, there has been an unprecedented change in the way we organize ourselves socially and in our daily routines. A sudden withdrawal from school, social life, and outdoor activities have greatly affected adolescents. In a study conducted in Germany, it was shown that children and adolescents felt a significant burden due to quarantine, social distance, and education at home. The study demonstrated that adolescents' vitality decreased during this period, and that their tension and depression levels, and emotional fragility increased (Ravens-Sieberer et al., 2021).

In our study, adolescents also mentioned the "lockdown of life" due to restrictions. Similarly, in another study on adolescents and youth in South Africa, participants described their situation as "on hold" and "stuck", and expressed their unfolding anxiety, frustration, and feelings of purposelessness (Gittings et al., 2021). These studies are all in line with our study.

Main theme 4: future expectations

In our study, the opinions of adolescents implied that the COVID-19 pandemic will affect their expectations and plans for the future. Although the adolescents expressed that they were uncertain and worried about the future, it was inferred from some of their statements that they were also hopeful. In a study conducted with adolescents in Italy, participants mostly talked about feelings of uncertainty about the near future. In this study, about a quarter of the participants stated that they were disappointed, and thought that the summer would be sad, boring or scary. Only about one-tenth of the adolescents expected that the summer would still be interesting and entertaining and stated that they were hopeful (Commodari & La Rosa, 2020).

The fifth and final level of Bronfenbrenner's Ecological Theory, the chronosystem, consists of all environmental changes that occur throughout the lifespan and affect development, including transitions and historical events that occur in life (Bronfenbrenner & Evans, 2000). The Covid-19 pandemic has caused disruptions in the chronosystem by affecting both the period in which adolescents live and their plans and expectations about the future. Psychosocial development in adolescence, which is the transition period from childhood to adulthood, requires the adolescent to develop a realistic and positive self-image and identity (Tsang et al., 2012). The acquisition of identity is the most important psychosocial aspect of adolescence (Chávez, 2016). There is reason to believe that changes in the chronosystem will affect the identity acquisition process of adolescents (van Doeselaar et al., 2018). As can be inferred from the views of adolescents, a change in a system affects all systems just like a chess piece. In order for the development of adolescence to be completed in a healthy way, it is necessary to complete the development of each system and solve its problems. Otherwise, problems may be carried to young adulthood or adulthood.

Main theme 5: metaphors about COVID-19

An important finding of this study is that all participants produced negative metaphors (Fig. 1). As can be seen in Fig. 1, some metaphors look positive, but it is inferred from their comments that their opinions on the metaphors are negative. Similarly, in one study in South Africa, adolescents found themselves "on hold" and "stuck" (Gittings et al., 2021). In another study in Italy, adolescents expressed their situation "as if in a prison, locked between walls and screaming", "as if it were winter or autumn" (Commodari & La Rosa, 2020).

Adolescence is a period during which abstract thinking develops. The development of abstract thinking can enable adolescents to solve problems they face. However, this study implied that the long duration of the pandemic and the negative opinions of adolescents about it may have adversely affected their cognitive, psychosocial and emotional development processes. It is even possible that traces of these negative emotions may extend into young adulthood and adulthood (Sanders, 2013).

Implications for pediatric nursing practice

The findings of the study may help pediatric nurses to be aware of potential problems experienced by adolescents. They may plan interventions to support adolescents socially and developmentally regarding these problems. Moreover, they may prepare training that will increase the awareness of adolescents and families about the negative effects of the pandemic. They may also use the ecological theory to monitor the development of children and adolescents.

Limitations

Due to physical restrictions during the pandemic face-to-face interviews could not be held with adolescents. Therefore contextual data could not be collected by the researchers regarding the area where the

participants were located. This also resulted in the exclusion of participants who had little or no access to the technology used on the online platform.

Conclusion

The impact of the COVID-19 pandemic around the world is not over yet and will likely continue for the next few years. Like all other countries in the world, Turkey is trying to control the pandemic by taking important steps to return to normal life. Researchers are conducting research on how macro-level events such as the COVID-19 pandemic will affect the development of children and young people. We assert that the Ecological Theory can guide the research on adolescents by providing a framework for determining the development of children and adolescents in systems that have cascaded or intertwined in progress of time. Consideration of these systems demonstrate that we should pay attention to the factors that can affect the development of adolescents or strengthen them during the global pandemic. Moreover, the Ecological Theory allows the experience of adolescents (with factors such as the family, friends, society, time) to be comprehensively addressed. The authors hope that the findings obtained from this study will guide future researchers.

Author contributions

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 Data collection: SS, LM.
 Analysis and interpretation: LM, SS.
 Writing the manuscript: SS, LM.
 Critical revision of the manuscript: SS, LM.
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Declaration of Competing Interest

No conflict of interest has been declared by the authors.

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