



COVID-19 pandemic experiences of secondary school students in Turkey

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Abstract

This study aims at identifying secondary school students' life experiences during the coronavirus (covid-19) pandemic time. With the concept of life experiences used throughout the research; Students' views on their daily routines during the pandemic, changes in their lives, the precautions they take against the epidemic and their continuing education practices are expressed. Phenomenology, which is an approach to qualitative research, was adopted in this study. The study data were gathered through semi-structured interviews and analysed via content analysis. This study was carried out with a study group composed of students who were attending a state school in Turkey and who were included in the scope of lockdown. The study group was determined by criterion sampling, which is one of the purposeful sampling methods. The study group consisted of 20 students, 14 girls and 6 boys. Students' age ranged from 14 to 16 years old. Students are in the 7th and 8th grades of secondary school. According to the content analysis carried out within the framework of this study, secondary school students interpret covid-19 as unhealthiness and unusualness, they spend time at home indulging in academic pastime, daily routine and free time activities. They take necessary precautionary measures regarding hygiene, interpersonal contact and nourishment in order to protect themselves from covid-19 virus. As a result of the covid-19 pandemic, students' daily routines and perceptions have changed, and they have experienced positive and negative emotions in the face of these changes. They tend to receive social support, participate in leisure activities and use personal coping strategies to manage negative emotions and thoughts caused by the Covid-19 pandemic. The participant students have positive and negative thoughts about the distance education conducted during the pandemic time, and they have some suggestions as to education and protection from the virus in order to spend the pandemic days more healthily.

Keywords Covid-19 pandemic · Pandemic experiences · Psychological effects of the pandemic · Secondary school students

Introduction

The world has faced a number of pandemic diseases up until now and millions of people have died during pandemic times. The oldest epidemic that is known today and has been

recorded is the Plague of Athens that devastated the city of Athens between B.C. 429–426 (Littman, 2009). The humanity came across many epidemics after this plague, whereas the one known as black death that appeared in Europe between the years of 1347–1357 was a serious epidemic which killed 75–100 million people (Huppert, 1998; Suzanne, 2003). Mankind witnessed a similarly serious epidemic between the years of 1918–1920, when 50 million people died because of the Spanish flu (Taubenberger & Morens, 2006). In recent times, though not as serious as the previous ones, SARS that took place in 2002–2003 SARS (Stockman et al., 2006), Influenza virus that came out in 2009–2010 (Girard et al., 2010) and Ebola virus that appeared in 2013–2016 (Feldmann & Geisbert, 2011) have been recorded as serious epidemic diseases in the history of humanity. The latest pandemic which first appeared in the Wuhan province of China in December 2019 and has spread

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worldwide since then is called as the new type coronavirus (Covid-19).

The Spread of Covid-19

While the cases seen in the first months of the Covid-19 outbreak are mostly seen in China, it has been reported that the number of cases seen worldwide in the first week of March 2020 is more than 100,000. (Jiao et al., 2020). It was announced to be a pandemic by World Health Organization (WHO) on March 11, 2020 as all countries throughout the world were affected by Covid-19 at a social and personal level directly or indirectly. Pandemic can be defined as an epidemic that has spread across the world. It can also be described as a “wide epidemic”, “an epidemic influential across a large region and a state that mostly affects a large part of the population” and “a phenomenon that spreads across a region, a country, a continent or the whole world” (Morens et al., 2009, p. 1019–1020).

During the covid-19 pandemic, there have been a number of changes in people’s lifestyles, behaviours and daily routines to a great extent in order to get protected from the pandemic. These changes include compulsory quarantine, lockdown, intercity travel bans, international travel bans, flexible working hours, distance education implementations and controlled social life rules. All these changes appearing in the daily flow of life all over the world have had a great impact on people in social, professional, economic, physiological, and most importantly psychological terms. The changes and ambiguities created by the pandemic trigger negative emotions such as fear, anxiety, anger, disappointment and depression (Orru et al., 2020), while they deteriorate previously-diagnosed mental problems (Brooks et al., 2020; Qiu et al., 2020).

Education During the Covid-19 Pandemic

Although the pandemic clearly affects all individuals at all developmental stages at different levels from various aspects, it is thought that its impact on children and teenagers, who constitute half of the world’s population, might cause serious psycho-social problems in the long term (Akoglu & Karaaslan, 2020; O’Reilly, et al., 2020). One of the most important protective factors that help children and teenagers to keep their physical, social and psychological well-being is having a structured and planned school day (Brazendale et al., 2017). However, the data by the United Nations Education, Science and Culture Organization (UNESCO, 2020a) show that face-to-face classes at all levels of educational system were suspended in 172 countries on April 2, 2020 in order to control the spread of the pandemic, resulting in the highest level of school closure in the world. Worldwide School closures have affected

almost 84.8% (1,574,053,687) of all students. The schools were closed in Turkey on March 16, 2020 and nearly 25 million students (UNESCO, 2020a) started distance education on March 23, 2020.

Suspending schools and starting distance education suddenly and mandatorily without any previous preparation have led to difficulties in the educational system both in psychological terms and educational activities (Gokuladas & Baby Sam, 2020). The problems faced during the online education period include learning loss experienced by those students who lack the necessary technological infrastructure, teachers’ lack of online education skills and the failure to carry out necessary teacher trainings for that purpose, the ambiguity concerning the evaluation and assessment processes (Chang & Satako, 2020), the increasing inequality in the educational system, loss of access to healthy food for children and teenagers attending boarding schools (Giannini & Lewis, 2020), and most importantly, the negative effects on the lives of students in poor and underdeveloped countries having a low level of school attendance and graduation and at refugee camps (Giannini & Albrechtsen, 2020).

Countries all around the world have conducted various studies in order to continue educational process during the pandemic. Chang, the chief of Education Policy Section at UNESCO, (UNESCO, 2020b), indicates that out of 84 countries, where he carried out a research, 58 countries cancelled or re-planned exams, 23 countries made use of alternative methods such as online or home-based tests, 22 countries continued to do exams, 11 country completely cancelled the exams. In the USA, more than 1100 colleges and universities in 50 states delayed exams, cancelled face-to-face exams and switched to online education (Smalley, 2020). European countries such as Italy, France, Greece, Czech Republic, England, Austria and Bulgaria continued distance education through various e-learning platforms ensuring interaction between teachers and students, and TV programs on national channels (The World Bank, 2020). When it comes to the Middle Asia, Kirgizstan, Kazakhstan and Uzbekistan continued distance education via TV channels, Facebook, you tube and e-library including educational materials in Kirghiz language, Russian, Tajik and Uzbek (Levina, 2020). Many schools were closed down, and distance education started at schools and universities in Russia (Sofroneev, 2020). In Australia, schools were closed down locally, and the responsibility was handed over to states and regions. Many schools having online systems started distance education (Wilson & Mude, 2020). As there are many underdeveloped countries in Africa, there were places on this continent where educational activities came to a halt because of economic reasons, whereas some private and state schools continued distance education by means of technical platforms such as Google Classroom, Zoom, Edmodo and

Lesson (Veriava, 2020). In China, face-to-face education was banned, and online courses, mobile applications and online psycho-social support courses were offered (The World Bank, 2020).

During the pandemic, Turkey conducted distance education at primary, secondary and high schools via the platform of EBA (Education Information Network) and the channel of TRT (Turkish Radio and Television Corporation). EBA is an electronic content network with a social nature which has been established by the Ministry of National Education and presented for use free of charge (MEB, 2021a). EBA entered the educational world in 2012 and its mobile application came to use in 2016 (Aktay & Keskin, 2016). Teachers can upload the content materials they have prepared to EBA as they wish, and they can easily reach notes and presentations shared by other teachers. Also, students can get access to a very rich educational content via EBA. In addition to that, EBA Online Class application ensures that students can receive online training from their teachers (MEB, 2021a). MEB (2021b) indicates that there were 12.643.925 students and 984.871 teachers who were active on EBA, whereas 195.933.666 course hours of classes were conducted at all grades on this platform between 21 September 2020 and 26 March 2021. Students were provided with educational content on 112 courses by 812 teachers on three different channels which are TRT EBA Primary School TV, TRT EBA Secondary School TV and TRT EBA High School TV, all of which are distance education platforms established within the body of TRT in March 2020. According to MEB (2021b), 8.007 h of lessons were broadcast and 5.826 course videos were produced on these three channels between 21 September 2020 and 26 March 2021. Various studies in the literature recommend to invest in fair and accessible digital learning applications, providing the necessary resources to meet all students' and schools' needs in order to improve the effectiveness of education during the pandemic time (Angelico, 2020) and prepare students for the post-pandemic world (Telesra, 2020).

Another important issue that affects the education, motivation and success of students in learning during the pandemic period may be the personality traits of teachers. Students are more motivated to learn when they have teachers who are helpful, who think before they act, who can control their impulses, who plan and direct things. Conscientious teachers with these characteristics can increase the success of their students. However, active, warm, assertive teachers motivate their students less. In other words, teachers with extroverted personality traits who have these characteristics increase the success of students less (Khalilzadeh & Khodi, 2021). In the pandemic period, teachers with conscientiousness personality traits and teachers with less extroverted personality traits can increase students' motivation. During this

period, studies can be organized to help teachers develop these characteristics.

Psychosocial Effects of Covid-19

Besides school closures decided for the purpose of preventing the spread of Covid-19 pandemic, lockdown that is binding for children under 18 years old has changed children's daily routines to a great extent, and as a result, students have drifted away from school life, interaction between peers has diminished, living space has been limited to home for them and they have started to experience an obligatory isolation. The isolation period, which has started as a precautionary measure against the pandemic, is thought to be a direct risk factor for children's physical, social and psychological well-being (Di Giorgio, Di Riso, Mioni & Cellini, 2020). According to Sprang and Silman (2013), the children who stay under quarantine due to an illness have post-trauma stress scores four times higher than their peers, while 30% of these children meet the criteria of post-trauma stress disorder. In another study carried out by Imran, Zeshan and Perwaiz (2020), it has been concluded that during the pandemic time, school-age children show reactions such as a sharp increase in fear and anxiety, fear of getting infected, problems between siblings, aggressiveness, psychosomatic complaints, sleeping problems, avoidance to fulfil responsibilities, difficulty to concentrate, unrest and social distancing.

Aim of the Present Study

Educational system in Turkey prescribes 12 years of multi-stage compulsory education. This educational process is divided into three different periods as 4 + 4 + 4. The first period is composed of a 4-year primary education (1—4. grade), the second period is composed of a 4-year secondary education (5—8. grade) and the third period is composed of a 4-year high school education (9 -1 2. grade) (MEB, 2012). This study was conducted with secondary school students. Secondary school students are in adolescence period in terms of developmental stages. According to Erikson (1950), adolescence refers to a period when personal identity development is faster than other developmental stages. This is a period when adolescents are given an opportunity to decide on their future jobs, to think over what kind of social and romantic relationships they will start, and to contemplate on which values and beliefs they have (Schwartz et al., 2012). Covid-19 pandemic has had some effects on adolescents as is the case with individuals in other developmental stages. The outbreak of Covid-19 pandemic and the increase in the Covid-19 cases have led adolescents to have a higher level of fear, anxiety, stress, nervousness and depression, whereas compulsory isolation has caused a decrease in social relations and an increase in the feeling of loneliness (Rajkumar,

2020). Social relations constitute a structure that meets very basic needs such as well-being, physical and emotional competency, identity building, coping, receiving and giving social support for adolescents. As is mentioned in the previous studies, social isolation affects adolescents' psychological and emotional well-being (Holt-Lunstad, 2007), and decreases the social support that adolescents need during this period. Therefore, precautions such as closure of schools, online education, lockdown, restrictions on social environments have created a bad impact on adolescents during a period when they should learn how to establish social relations with their peers and build their own identity (Savi-Çakır & Uzun, 2021). Because of that reason, considering the complicated nature of adolescence, it is of vital importance to investigate how pandemic time has affected adolescents. Moreover, there are studies which reveal that there is a relationship between how individuals react to epidemics, their level of adaptation to epidemic and how they perceive and experience the epidemic (Hekler et al., 2008; Kundi & Bhowmik, 2020). There are also studies which indicate that individuals' perception about and experiences of epidemic also determine what kind of precautions they will take to protect themselves from the disease (Mant et al., 2021; Salameh, Basha & Basha, 2021). In this context, the current study aims at identifying secondary school students' perceptions and experiences regarding the pandemic time.

Method

Research Design

Phenomenology, which is an approach to qualitative research, has been adopted in this study. Phenomenology is a qualitative research method that tries to explain the essence of a phenomenon through the viewpoint of those who have experienced it (Neubauer et al., 2019). The fundamental goal of phenomenology is to render individual experiences about a phenomenon down a universal and original definition. For that purpose, researchers should define the phenomenon of the research they are conducting (Creswell & Poth, 2016). The phenomenon of the current study is defined as experiences of epidemic. After defining the phenomenon, researchers should build up a heterogeneous group of at least three members who have experienced the phenomenon in question (Creswell & Poth, 2016). The study group of the current study is composed of secondary school students. In phenomenological studies, data can be collected via interviews, while it is also possible to collect data through various other resources such as poems, observations and documents (Creswell & Poth, 2016). The method of semi-structured interview has been preferred in the current study.

Phenomenological studies end with a systematic analysis that defines “what” and “how” an individual is (Creswell & Poth, 2016).

Study Group

The study group was determined via criterion sampling, which is a purposeful sampling method. Criterion sampling is a method that determines the participants that meet the criteria that are set previously in line with the aim of the study (Fraenkel & Wallen, 2009; Yıldırım & Şimşek, 2018). The study group is composed of students receiving education at state secondary schools connected to Republic of Turkey, Ministry Of National Education. The criteria to determine the participant students included not being infected by the virus, having parents who let them participate in the study and studying at 7th or 8th grade. 14 female and 6 male students participated in the study. 13 of the participants were studying at 7th grade, while 7 of them were studying at 8th grade. Students were aged between 13 and 15. The number of the participants were determined within the scope of the study by the nature of qualitative studies. In qualitative studies, sample size should be determined according to the amount of the rich information received from the sample rather than a specific formula or quantity (Charmaz, 2011; Duffy, 1985; Lewis, 2015). The ideal sample size is the point where the data get saturated and are repeated cyclically (Denzin & Lincoln, 2008; Guba & Lincoln, 1982). Considering this fact, the cycle of the data received within the scope of this study and the level where they reach saturation were evaluated, and consequently the number of the participants was determined to be 20. These students were chosen randomly among 7th and 8th grade students who were volunteer to participate in the study. As the number of female students who volunteered to participate in the study was higher than male students, the numbers of female and male participants were not equal.

Data Collection Tool

The study data were gathered via a semi-structured interview form developed by the researchers. The interview form consists of open-ended questions. Open-ended questions are ideal for exploring, explaining, confirming the current situation (Jackson & Trochim, 2002) and showing that there is no single truth (Klavir & Hershkovitz, 2014). Three stages can be used in the preparation of open-ended questions (Perdana, Riwayani, Jumadi & Rosana, 2019): it was defining the construct and formatting objectives, validity by expert review and item administration. Before the interview form was developed, literature regarding pandemics and pandemic times was reviewed and then open-ended questions were created. The open-ended questions

were presented to four experts, three of whom were in the field of psychological counselling and one of whom was in the field of Turkish language. The opinions obtained from the experts were classified as 'necessary', 'necessary but not sufficient' and 'not necessary' for the questions. Questions deemed 'necessary' by a certain number of experts should be included in the research (Ayre & Scally, 2014). Lawshe (1975), on the other hand, has proposed a formula for the validity rate of questions as to how many experts consider a question "necessary". All these evaluations were made eight questions that were approved by the experts were included in the interview form. The open-ended questions included in the interview form are given in Table 1.

Collecting Data

The study data were gathered via semi-structured interviews. The data were gathered during the days when there was a lockdown for children under the age of 18. Permission was obtained from the parents for the students to participate in the research. As there was a lockdown and the schools were closed, the interviews were conducted via phone call. The interviews were recorded by the help of an audio-recording program. The interviews each lasted for about 10–15 min.

Data Analysis

Participants students' responses were analysed via content analysis, which is a qualitative research method. The content analysis was conducted in three steps, evaluating each question in itself. In the first step, the responses by the students were read line by line and codes were created. The second step was to identify sub-themes that explained in general the codes which were related to each other and formed a meaningful unit. Lastly, the third theme was to identify main themes that would encompass and reflect sub-themes.

During the data analysis, the first and second authors, first of all, transcribed the interviews. The transcribed interviews were analysed by each author. Then, all the authors came together to discuss the results. The discussions went

on until all the minor disagreements among the authors were resolved to reach an agreement. The discussions were conducted in a cooperative environment in which everybody respected others' opinions on an equal basis.

The main themes, sub-themes and codes obtained at the end of analysis are given in Table 2. Regardless of the names of the twenty students who participated in the study, the documents were numbered from one to twenty and the opinions of the students were classified as S1, S2, S3 etc.

Validity and Reliability of the Study

In qualitative studies, internal validity (credibility), external validity (transferability), internal reliability (consistency) and external reliability (confirmability) are ensured via various methods (Yıldırım & Şimşek, 2018). In this study, internal validity was ensured by expert views, participant approval (by means of asking the participant various questions during the interview in order to ensure that the researcher had understood the participant's response correctly, and by getting in touch with the participant student once again on the phone in case of any blur in meaning during the analysis), taking direct quotations in the results, having data collection tool and results that conform with the literature. The method was explained in detail in order to ensure external validity. Inter-rater reliability formula suggested by Miles and Huberman (1994) was used to identify internal reliability. $\text{Reliability} = \frac{\text{Number of Agreements}}{\text{Number of Agreements} + \text{Disagreements}} \times 100$. At the end of the calculation, the reliability of the study was found to be 91.5%. The processes of data collection and analysis were described in detail for external reliability.

Ethical Approval

The necessary ethical approvals were obtained from the Ministry of Health COVID-19 Scientific Research Committee (with an application code of 2020–11-06T21_45_48) and Hacettepe University Ethics Commission (Ethics Commission Permission numbered 35,853,172–600) in order to

Table 1 Open-ended questions used in the study

Open-Ended Questions
1) What does Covid-19 mean to you?
2) How do you spend time at home during the Covid-19 pandemic time?
3) What kind of precautions do you take to protect yourself from the Covid-19 pandemic?
4) What has changed in your life during the Covid-19 pandemic?
5) How do you feel in the face of the changes in your life during the Covid-19 pandemic?
6) What do you do to overcome negative feelings and emotions created by the Covid-19 pandemic?
7) What do you think of distance education practices implemented during the Covid-19 pandemic?
8) What can the society and institutions do in order to spend the Covid-19 pandemic time more healthily? What are your suggestions?

Table 2 Covid-19 pandemic time experiences main themes, Sub-Themes, codes and frequency

Main themes	Sub-Themes	Codes	Frequency	Sum of Sub-Theme frequencies
Meaning of Covid-19	Unhealthiness	Fatal disease	10	28
		Negative mood	10	
		Virus	6	
		Unhealthy Life	1	
		Desire to Wash Everything	1	
	Unusualness	Staying home / Quarantine	4	14
		Obeying rules	4	
		Danger and Chaos	4	
		A life-changing event	1	
		Value of freedom	1	
	Other	Unimportance	1	2
		China and bat	1	
Total			44	
Spending Time at Home	Academic Pastime	Studying	15	35
		Participating online classes	9	
		Reading a book	9	
		Doing an experiment	2	
	Daily Routine	Doing cleaning	4	7
		Sleeping	2	
		Care of patient	1	
	Free Time Activities	Watching a video/movie	9	40
		Spending time with family	6	
		Playing computer games	4	
		Kitchen work	4	
		Playing mind games	4	
		Using Tablet/telephone	3	
		Communicating with friends	3	
		Keeping a diary	2	
		Painting	2	
		Spending time on the Internet and social media	2	
		Playing a musical instrument	1	
		Total		
Precautionary Measures for the Pandemic	Hygiene Measures	Hand hygiene	16	36
		Home hygiene	9	
		Being careful about personal hygiene	4	
		Obeying hygiene rules	4	
		Disinfecting the materials that have just come home	3	
	Inter-personal Precautionary Measures	Staying home	14	30
		Keeping social distance	8	
		Using mask and gloves	5	
		Not getting in touch with anybody	2	
		Avoiding contact with surfaces	1	
	Precautionary Measures Regarding Nourishment	Healthy diet	2	2
Total				68

Table 2 (continued)

Main themes	Sub-Themes	Codes	Frequency	Sum of Sub-Theme frequencies		
Life Changes	Changes in Daily Routine	Not getting out of home	8	29		
		Not being able to go to school	6			
		Changes in sleeping and eating habits	5			
		Spending more time with family members	5			
		Not being able to meet friends face-to-face	3			
		Not being able to do outdoor activities	2			
	Changes in Perceptions	Understanding the value of freedom	2	7		
		Focusing on lessons more	2			
		Sparing more time for personal development	2			
		Understanding the importance of hygiene	1			
Total				36		
Emotions	Negative Emotions	Missing	7	32		
		Sadness	6			
		Anxiety	5			
		Fear	5			
		Boredom	4			
		Regret	2			
		Unhappiness	1			
		Feeling Stuck	1			
		Anger	1			
	Positive Emotions	Happiness	5	7		
		Relaxation	2			
		Total				39
		Overcoming the Negative Emotions	Receiving Social Support		Receiving support from parents	4
Communicating with friends	3					
Talking on the phone / Texting	2					
Tendency to Free Time Activities	Trying different hobbies		2	7		
	Doing the cleaning		2			
	Watching a film		1			
	Painting		1			
	Taking care of a flower		1			
Personal Coping Strategies	Auto-suggestion (self-talk)		2	6		
	Not being able to do anything		2			
	Increasing social distance		1			
	Eating too much		1			
Total				22		

Table 2 (continued)

Main themes	Sub-Themes	Codes	Frequency	Sum of Sub-Theme frequencies
Distance Education Practices	Negative Thoughts	There are technical problems with EBA	6	29
		Duration of an online lesson is short	5	
		It does not compensate face-to-face education	5	
		Distance education is not effective	5	
		EBA TV is not sufficient	4	
		Online classes are fewer than necessary	2	
		Educators on EBA TV are not good at giving a lesson	1	
		Not being able to have an access to distance education	1	
	Positive Thoughts	Finding distance education practices positive	6	15
		Finding online classes effective	5	
		Finding online private lessons effective	2	
		Ensuring concentration on the lesson	1	
		Being easeful (comfortable)	1	
Total				44
Suggestions for the Pandemic Time	Suggestions Regarding Education	Duration and number of online classes should be increased	2	7
		Educational activities should be more in number	1	
		Special facilities should be bought for students	1	
		Children should be informed about corona	1	
		Students should be communicated more	1	
		Schools should be opened	1	
	Suggestions for Protection from the Pandemic	Rules/precautionary measures should be obeyed	8	24
		Stay home	5	
		There should be more audits as to the rules	3	
		Strict rules should be enacted	2	
		People should be informed sufficiently	2	
		Shopping centers should be closed down	1	
		Working from home should be increased, public transport use should be controlled	1	
		Everyone should be provided with services equally	1	
There should be created areas where children can go out safely	1			
Total				31

carry out this study. The whole study was conducted relying on the principles of the Declaration of Helsinki. The Declaration of Helsinki was first adopted in the 18th General Assembly of World Medical Association in 1964, and the principles were developed in time. The aim of the declaration, which was last updated in 2008, is to identify ethical principles for studies including volunteers. In this context, at the beginning of the current study, the students and their parents were informed of the study purpose and a consent was received from them to participate in the study. The students were told that they would refuse to participate in the study, stop the interview in the middle, their identity information would be kept confidential, the results would be used only for scientific purposes, and they would be audio-recorded during the interview.

Results

The study results are given in Table 2. The table below shows the main themes, sub-themes, codes and frequency of the answers given by the participant students.

Meaning of Covid-19

When Table 2 is examined, it is seen that the participant students' views about the meaning of covid-19 are composed of three sub-themes, which can be listed as unhealthiness, unusualness and other. According to these results, students most often describe covid-19 as a *fatal disease* and *negative mood* under the sub-theme of unhealthiness. Some examples for each sub-theme of students' perceptions regarding covid-19 are quoted below:

“For me it means sickness and death. Because there are many sick people and people dying” (S5: Female; 16 Age)

“When Covid-19 is mentioned, I think of things that people need to be sensitive to, a virus. To me, it means a state that one should be careful about.” (S6: Male; 16 Age)

“It doesn't mean good things to me. I think it is a big chaos. As everyone has to stay home, their moods are bad. I mean, I think it is a chaos when I think of my friends whom I get in touch with and my family members, at least.” (S10: Female; 15 Age)

Spending Time at Home

As is seen in Table 2, the participant students' views about spending time during the covid-19 pandemic time are composed of three sub-themes, which can be listed as academic pastime, daily routines and free time activities. According to

these results, students mostly spend time at home *studying* under the sub-theme of academic pastime. Some examples for each sub-theme of how students spend time at home are quoted below:

“I usually spend time following the program of the private course. The course has prepared a very busy program as we are 8th grade. I am trying to keep up with this program. There is a certain number of questions that I have to solve daily.” (S1: Female; 15 Age)
 “And I clean my room once a week. I don't want to have my mother clean my room. You know, hygiene is important. I do the cleaning myself. I vacuum and I dust my computer, my table.” (S17: Male; 14 Age)
 “I usually watch a movie, I like animation movies. I mostly watch a movie in my room. I also watch videos on Youtube. I usually watch videos for improving various skills. For example, I watch videos to gain deep swimming or holding breath while running.” (S15: Female; 15 Age)

Precautionary Measures for the Pandemic

Table 2 shows that the participant students' views about precautionary measures for the pandemic are composed of three sub-themes, which can be listed as hygiene measures, interpersonal measures and precautionary measures regarding nourishment. According to these results, students mostly adopt the precautionary measure of *hand hygiene* under the sub-theme of hygiene measures. Some examples for each sub-theme of students' views about the precautionary measures for the pandemic are quoted below:

“I am trying to take measures about washing my hands at the utmost. I often wash my hands for 20 seconds.” (S4: Female; 15 Age)

“We, all family members, never go out. Of course, I never go out, it is already forbidden. Only my mother goes to the market.” (S10: Female; 15 Age)

“I try not to get in touch with anybody. I already stay in my room most of the time. I feel that I will be sick even when I talk to my family. On days when my mother goes to the market, I don't get out of my room. I only use my room and bathroom at home.” (S17: Male; 14 Age)

“I am trying to take care of myself at home. I am careful about what I eat. I don't like eating vegetables, but I occasionally eat spinach as it is healthy. I didn't use to eat it before.” (S9: Male; 14 Age)

Life Changes

According to Table 2, the participant students' views about life changes during the covid-19 pandemic are composed

of two sub-themes, which are changes in the daily routine and changes in the perceptions. According to these results, the most frequent life changes in participant students' lives is *staying home* under the sub-theme of changes in the daily life. Some examples for each sub-theme of students' views about the changes in daily life are quoted below:

"My sleeping routine has changed. Normally, I used to go to bed at a certain time and get up early in the morning. Now, I don't want to go to bed when mums are watching TV. As I don't have to get up early, mums don't make me go to bed. My conceptions of days and nights have changed." (S19: Female; 14 Age)

"I didn't use to spend so much time with my family during school time. I have realized that. We used to spend a lot of time at school. The time we spend at home has increased. I can say that I started to know my family better. I could find time to chat or play with them." (S4: Female; 15 Age)

"I have noticed that how long the days are actually. I have a lot of free time. I can do everything to improve myself at home; meals, games, lessons." (S6: Male; 16 Age)

Emotions

When Table 2 is examined, it is seen that the participant students' views about how they feel in the face of the changes in their lives during the covid-19 pandemic time are composed of two sub-themes, which are positive emotions and negative emotions. According to these results, students most often experience the feeling of *missing* under the sub-theme of negative emotions during the pandemic time. Some examples for each sub-theme of students' emotions during the covid-19 pandemic time are quoted below:

"I miss the outdoor activities I used to do with my friends, going out and my friends very much. I can't find anything to do at home." (S19: Female; 14 Age)

"I feel sad because I can't go to the sports, I can't meet anyone. I have an elder sister. She is married and she has just had a baby. I have been able to see the baby only once up until now. Also, there is a problem with the baby's foot. They are using an apparatus to treat it. I want to see, and I feel sad because I can't see." (S13: Male; 15 Age)

"I am happy with this change as it has helped to study for the exam. It has been very useful for me in terms of my lessons. I have a lot of time for the exam and this makes me feel relaxed." (S3: Female; 15 Age)

Management of Negative Emotions

As is seen in Table 2, the participant students' views about the management of negative emotions and thoughts they experience during the pandemic time are composed of three sub-themes, which can be listed as receiving social support, tendency to free time activities and personal coping strategies. According to these results, students most often *receive support from their parents* in order to management of negative emotions and thoughts created by the pandemic time under the sub-theme of receiving social support. Some examples for each sub-theme of students' management of negative emotions and thoughts during the covid-19 pandemic time are quoted below:

"I hug my mother, I tell her that I am scared. I talk with my mother. I don't talk much about these things with my father as he is already sick. But I feel really sad. My mother's support is very good for me. I am also scared that something bad will happen to her." (S7: Female; 15 Age)

"When I miss my friends or when I get bored, I text to them in order to deal with this. I talk to them on the phone. As my house is across Şeyma's house, we also talk to each other from the window. Namely, I am looking for ways to communicate." (S8: Female; 14 Age)

"When I get bored, I do something new and different, I find different pastimes. And this makes me feel better. I try new recipes in the kitchen, I play with my sibling." (S16: Female; 15 Age)

"I talk to myself, I have a quality. I stand in front of the mirror and talk to myself. I say, look, you are doing this and this, you should limit it, you should come to yourself." (S12: Female; 15 Age)

Distance Learning Practices

According to Table 2, the participant students' views about the distance learning practices implemented during the pandemic time are composed of two sub-themes, which are positive thoughts and negative thoughts. According to these results, students most often think that *there are technical problems with EBA*, which falls under the sub-theme of negative thoughts and *they find it nice to carry out distance education activities* under the sub-theme of positive thoughts. Some examples for each sub-theme of students' views about the distance education practices are quoted below:

"There are usually audio and connection problems with EBA, so I can't make the most of the distance education given by the school." (S14: Male; 15 Age)

"I watch TV but it would be better if there was school. I wish there weren't a disease and there weren't dis-

tance education. The education at school was better. The two types of education are even incomparable.” (S7: Female; 15 Age)

“I think distance education is good. If there weren’t any lessons, we would sit for the exam with a miss next year. The exam would be much more difficult for us. At least, it creates a basis for this years’ lessons.” (S5: Female; 16 Age)

Suggestions for the Pandemic Time

Table 2 shows that the participant students’ suggestions in order to pass this pandemic time more healthily are composed of two sub-themes, which are suggestions regarding education and suggestions regarding protection from the pandemic. According to these results, students most often suggest that *rules-measures should be obeyed* under the sub-theme of the suggestions regarding protection from the pandemic. Some examples for each sub-theme of students’ suggestions for the pandemic time are quoted below:

“I think online classes and distance education hours should be increased. Daily lesson hours are too few. If there were at least four or five hours, it would be closer to school.” (S5: Female; 16 Age)

People who are responsible for school or work, directors can send activities and homework to be done at home.” (S18: Female; 15 Age)

“I think, institutions and workplaces take precautionary measures as much as possible. There is an announcement about a new measure on TV every day. These measures should be implemented, rules should be obeyed.” (S2: Female; 14 Age)

“People have started to go out and not to wear mask before the disease is completely over. I think, they should obey the rules. It should be supervised very carefully if they obey the rules or not.” (S11: Female; 15 Age)

Discussion and Conclusion

This study has focused on the perceptions and experiences of secondary school students who have experienced isolation during the pandemic time. The study results as to how participant students make sense of covid-19 fall under two themes, which are unhealthiness and unusualness. While covid-19 is interpreted as a fatal disease, negative mood, virus, unhealthy life and desire to wash everything under the theme of unhealthiness, it is interpreted as staying home, quarantine, obeying rules, danger and chaos, a life-changing event, school closure and understanding the meaning of freedom under the theme of unusualness. In addition, few

students interpret covid-19 as unimportance and China/bat. Students’ understanding of China/bat shows that they have adopted views based on mass media, social media and political discourses regarding the source of the virus. The fact that some students find covid-19 unimportance can be explained by the fact that they do not find covid-19 realistic and have thoughts such as seeing it as an ordinary disease. Study results show that secondary schools mostly associate covid-19 with unhealthiness, it is clear that they not only relate covid-19 to health but also describe it as a phenomenon that affects their life in an unusual way. In a similar study conducted by Karataş (2020), 8th grade students defined coronavirus as death, unity and solidarity, knowing the value of the beloved ones, refreshment of the nature, restriction, disease, spending time with the beloved ones, punishment, boring, hygiene, danger, turning point, health, staying away, cost, divine test, adaptation. Demir-Öztürk, Kuru and Demir-Yıldız (2020) carried out another study in which they found out that pre-school students perceived coronavirus as virus and insect. According to Souli and Dilucca (2020), secondary school students defined coronavirus as virus and bacteria. It has been found out that adults perceive covid-19 as the meaning of life, uncertainty, temporary disease period, distance among interpersonal relations, restricting freedom and importance given to basic needs (Kurt Demirbaş & Sevgili Koçak, 2020).

The study conclusions show that participant students spend time at home engaging in academic pastimes, daily routines and various free time activities during the covid-19 pandemic time. The academic activities that students got engaged in were studying for lessons, joining online class, reading a book and doing an experiment. On the other hand, their daily routine activities included cleaning and sleeping. Students’ free time activities were listed as watching a film/video, spending time with family members, playing computer games, doing errands in the kitchen, playing mind games, using a tablet/mobile phone, communicating with friends, keeping a diary, painting, spending time on the internet/social media and playing a musical instrument. It is seen that free time activities at home vary according to students’ opportunities, interests and abilities. However, one of the most important results of this study is that students spend too much time on the Internet and with technological devices. Similar results show that participant students, who have to stay home as schools have closed down, spend most of their time joining online activities, watching a movie, making video calls whereas the students who spend time reading a book are few in number (Souli & Dilucca, 2020); interest and participation in online games have increased significantly (King, Delfabbro, Billieux & Potenza, 2020); children spend time at home engaging in physical, mental, handcraft and interactive activities as well as school activities and digital time activities (Kurt Demirbaş & Sevgili

Koçak, 2020). It is thought that the increase in the time spent online and with technological devices during the pandemic time is related to not only various factors such as online games or social media use but also the fact that educational activities are carried out via EBA and various other online platforms as a result of distance education. At this point, it is deemed to be vitally important to ensure that students know how to use the technology wisely and safely in order to get protected from negative results of problematic use of technology and the Internet such as physical health problems, stress and anxiety (Beranuy et al., 2009; Roberts et al., 2015).

According to the study conclusions, secondary school students take precautionary measures regarding hygiene, interpersonal contact and nourishment in order to protect themselves from covid-19. Students are careful about hand hygiene, home hygiene, disinfecting materials and avoiding contact with surfaces regarding hygiene measures; they stay home, keep social distance, use a mask, get in touch with nobody as to interpersonal measures; they eat healthily as to nourishment measures. When the precautionary measures taken by the students are evaluated, it is clearly seen that they have the necessary and sufficient information about the rules for protection from the pandemic, and they obey these rules. However, according to the results of the research, there are also students who do not contact or communicate with anyone. It is thought that such a misperception about the measures negatively affects the personal, social and emotional development of students. At this point, it is thought that not only being aware of precautionary measures against covid-19 but also knowing the right methods to follow these measures is important for students. Similarly, some other study results show that secondary school students most often resort to the measure of washing hands in order to protect themselves from the pandemic, some others draw attention to using gloves and protecting hands, while only few of them avoid touching their noses or eyes, or wear face-mask as a precautionary measure (Souli & Dilucca, 2020).

It has been found out at the end of this study that there have been a number of changes in students' daily routines and perceptions during covid-19 pandemic time. The changes in students' daily routines include not being able to get out of the house, not being able to go to school, changing eating and sleeping habits, not being able to meet friends face-to-face, spending more time with family and not being able to do outdoor activities; changes in their perceptions consist of understanding the value of freedom, being able to focus on lessons more, concentrating on personal development and understanding the value of cleanliness. Likewise, literature review shows that school-age children experience life changes such as not being able to go to school, not being able to go to shopping center, being obliged to be careful with social distance (Kundi & Bhowmik, 2020). Moreover,

school closures because of the pandemic caused a lot of mood swings, sleeping problems and eating habit problems in children (Ghosh, Dubey, Chatterjee & Dubey, 2020). It has been concluded in another study that the impacts of pandemic restrictions on 8th grade students' lives include boredom, increase in anxiety, importance of freedom, learning to delay, loneliness, unrest, missing friends, importance of communication, value of the beloved ones, worthlessness, depression, despondency, having stronger family bonds (Karataş, 2020). It is seen that the pandemic time has physical, emotional, behavioural, personal and interpersonal level changes in people's lives.

It has found out in this study that students experience various positive and negative emotions as a result of the changes in their lives because of the pandemic. The negative emotions expressed by the students include missing, sadness, anxiety, fear, boredom, regret, unhappiness, feeling stuck, indolence and anger; positive emotions consist of happiness and relaxation. A study carried out by Brooks and et al. (2020) revealed that the uncertainty that arose during the pandemic time and the lockdowns caused individuals to experience negative psychological effects such as symptoms of post-trauma stress, confusion and anger. Grubic, Badovinac and Johri (2020) concluded in their study that students' mental health was affected badly, and they experienced a high level of psychological problems during this period. Kundi and Bhowmik (2020), Kurt Demirbaş & Sevgili Koçak, (2020) as well as Witt et al. (2020) also carried out studies in which they concluded that the most-frequently experienced emotions during the Covid-19 pandemic were anxiety, concern, despair, fear, hope, missing, sadness, distress, pessimism, happiness, suspicion, incompetency, trust, distrust, unrest, bravery, self-confidence, curiosity, envy, shock, respect, excitement, peace, disappointment, gratitude, regret, loneliness, relief, responsibility, hurry, unhappiness, shyness and fatigue. It is thought that Covid-19 pandemic has increased the need of psychological support for people as they experience negative feelings more than positive ones.

According to the another conclusion of this study, during covid-19 pandemic, students have tried different methods such as receiving social support, doing free time activities and using personal coping strategies that they have developed themselves. The theme of receiving social support includes receiving support from parents, getting in touch with friends and talking/texting on the phone. The theme of engaging in free time activities consist of trying different interests, doing sports, cleaning, painting, listening to music and looking after plants. The theme of individual coping includes methods such as auto-suggestion, increasing social distance and eating too much. The study conclusions show that most of the students take the advantage of very significant protective factors such as receiving social support from family and friends; engaging in free time activities such as

arts, music and sports activities in order to overcome the difficulties created by the pandemic. It has also been found out that some other students use wrong coping strategies that are not functional and that will lead them to some other problems such as not communicating with family and eating too much. It is thought that those students who make use of coping methods that are not functional need psychological counselling. In a similar study, it is stated that individuals receive social support and make use of behavioural coping methods in order to overcome the results of the pandemic time (Hatun et al., 2020).

The participant students' views about the distance education provided during the pandemic time are divided into two themes, which are positive thoughts and negative thoughts. The theme of negative thoughts includes the items that there are technical problems with EBA platform, online lessons are short, distance education does not compensate face-to-face education at school, distance education is not effective, the number of online lessons are insufficient, EBA TV educators are not good at teaching a lesson, it is not possible to ask a question on EBA TV and access to distance education is not available. The theme of positive thoughts consists of the items that online lessons are effective, distance education practices of private courses are effective, it helps to concentrate on lessons better and distance education is more comfortable. Primary school students define distance education with positive metaphors such as useful, education, flexibility, entertaining, including technology, and negative metaphors such as interaction, obligation, insufficiency, digital division (Bozkurt, 2020). Moreover, 8th grade students see distance education as ineffective lessons, health problems because of looking at a screen, lesser of two evils, upsetting, entertaining, adaptive, advantageous, making aggressive, stressful and boring (Karataş, 2020). While there are students that think distance education during the pandemic is positive and effective, there are some others who think it is negative and insufficient. In the light of these results, it is thought to be necessary to make significant revisions and strengthening efforts to improve distance education practices. In addition, it is thought that the COVID-19 pandemic period has an extra difficult side for refugee students who cannot understand and speak Turkish enough. Because the socio-economic levels of these students have limited their access to distance education opportunities (Ünal, 2022). Thus, they could not continuously benefit from the Turkish language training given to them through distance education. It is thought that this limitation in access to language education negatively affects the development of language skills such as reading, writing, listening and speaking, which are the most critical skills for refugee students to continue living and learning in the context of Turkey. In addition, it is thought that this situation negatively affects the social identity development of the students in the country they live in. Because,

according to Tadayan and Khodi (2016), second language education affects the social identity formation of refugee students speaking minority languages. In this context, it is very important for them to have access to education in the languages that are predominantly spoken in the country where they are integrated into the society and acculturation.

Students have made some suggestions regarding education and protection from the pandemic in order to pass covid-19 days more healthily. The suggestions made about education included increasing the number and duration of online classes, focusing on educational studies more, preparing special activities for students, providing children with information about corona, being in touch with students more and opening up schools. The suggestions made by the participant students about protection from the pandemic consisted of obeying the rules, closing down shopping malls, informing people of the pandemic sufficiently, controlling public transportation, increasing home-office working hours, letting children get out in certain times, continuing with lockdown, creating spaces for children to go out safely. The suggestions made by the students are thought to be worth to consider as they are based on the failing points of distance education practices and natural observations regarding people's performance about obeying rules/measures.

Limitations

The current study has some limitations. The study results are limited to perceptions of secondary school students, who were included in the group of lockdown during the pandemic. The study data were collected on the phone because of the pandemic. This might have led the researchers to receive less data from the participant students when compared to face-to-face interviews. Moreover, the study results should be generalized carefully as it is a qualitative study. The study findings are limited to the scope of the interview questions that were formulated based on the literature. As the current focuses on students from one school, it presents a limited context to understand pandemic experiences. As the study group is composed of students with a background of a low socio-economic level, the study findings can present a limited understanding about the pandemic experiences of students with various socio-economic levels.

Recommendations

Some suggestions can be put forward for educators depending on the study results. In this context, it should be noted that the fact that students spend most of their time on the internet with technological devices at home have made them more vulnerable to some risks such as cyber bullying, online fraud and technology addiction. In order to prevent that, students can be provided with informative seminars/

webinars on safe use of the internet and time management. It has been concluded in the current study that some of the students resort to dysfunctional coping strategies such as not getting in touch with anybody or eating too much in order to protect themselves from Covid-19 and overcome their negative feelings and thoughts. These students should be offered online psychological support. For those students who have been deeply experiencing negative emotions such as missing, sadness, fear, boredom, regret, shock, unhappiness, being trapped and hesitance during the pandemic time full of restrictions and lockdown periods, some studies should be carried out to increase their psychological resilience.

Based on the study findings, some suggestions can be offered to educational managers regarding distance education. According to this, distance education system can be strengthened in terms of infrastructure, access, content, application and pedagogy in line with the deficiencies of the system that appeared during the pandemic. Moreover, teachers, who are important actors of distance education, can be provided with in-service training in order to help them improve themselves about distance education.

Some suggestions can be given for future studies. Further studies can focus on pandemic experiences of university students, primary school students, pre-school students and adults. Moreover, experiences of individuals with different socio-economic backgrounds can be investigated. Some studies can be conducted to lessen the negative effects of the pandemic on students during the post-pandemic period. Studies aiming at developing a scale or a model as well as testing or establishing an experimental design can make use of the codes, sub-themes and main themes obtained at the end of the current study. The effect of the pandemic on students can be examined through studies that use both quantitative and qualitative research methods.

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Data Availability Data sets created during the current study and analyzed during this study are not publicly available due to their confidentiality and security.

Declarations

Ethical Approval The necessary ethical approvals were obtained from the Ministry of Health COVID-19 Scientific Research Committee (with an application code of 2020–11-06T21_45_48) and Hacettepe University Ethics Commission (Ethics Commission Permission numbered 35853172–600) in order to carry out this study. All procedures

performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Consent for Publication All the participants consented to participation.

Conflict of Interest The authors declare that they have no conflict of interest.

References

- Akoglu, G., & Karaaslan, T. (2020). COVID-19 ve İzolasyon Sürecinin Çocuklar Üzerindeki Olası Psikososyal Etkileri. *İzmir Katip Çelebi Üniversitesi Sağlık Bilimleri Fakültesi Dergisi*, 5(2), 99–103.
- Aktay, S., & Keskin, T. (2016). Eğitim Bilişim Ağı (Eba) İncelemesi. *Eğitim Kuram Ve Uygulama Araştırmaları Dergisi*, 2(3), 27–44.
- Angelico, T. (2020). Pandemic in Australia: Time to Shift the Educational Paradigm. *Journal of the Commonwealth Council for Educational Administration & Management*, 48(1), 46–53.
- Ayre, C., & Scally, A. J. (2014). Critical values for Lawshe's content validity ratio: Revisiting the original methods of calculation. *Measurement and Evaluation in Counseling and Development*. <https://doi.org/10.1177/0748175613513808>
- Beranuy, M., Oberst, U., Carbonell, X., & Chamarro, A. (2009). Problematic Internet and mobile phone use and clinical symptoms in college students: The role of emotional intelligence. *Computers in Human Behavior*, 25(5), 1182–1187. <https://doi.org/10.1016/j.chb.2009.03.001>
- Bozkurt, A. (2020). Koronavirüs (Covid-19) Pandemisi Sırasında İlköğretim Öğrencilerinin Uzaktan Eğitime Yönelik İmge ve Algıları: Bir Metafor Analizi. *Uşak Üniversitesi Eğitim Araştırmaları Dergisi*, 6(2), 1–23.
- Brazendale, K., Beets, M.W., Weaver, R. G., Pate, R. R., Turner-McGrievy, G. M., Kaczynski, A. T., Chandler, J. L., Bohnert, A. & von Hippel, P. T. (2017). Understanding differences between summer vs. school obesogenic behaviors of children: the structured days hypothesis. *International Journal of Behavioral Nutrition and Physical Activity* 14(1), 100–120. <https://doi.org/10.1186/s12966-017-0555-2>
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *The Lancet*, 395(10227), 912–920.
- Chang, G.C. & Satako, Y. (2020). *How are countries addressing the Covid-19 challenges in education? A snapshot of policy measures*. Retrived March, 26, 2021, from <https://gemreportunesco.wordpress.com/2020/03/24/how-are-countries-addressing-the-covid-19-challenges-in-education-a-snapshot-of-policy-measures/>
- Creswell, J. W. & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.
- Charmaz, K. (2011). Grounded Theory Methods in Social Justice Research. *The Sage Handbook of Qualitative Research*, 4, 359–380.
- Demir Öztürk, E., Kuru, G. & Demir Yıldız, C. (2020). Covid-19 pandemisi günlerinde anneler ne düşünüyor çocuklar ne ister? Anne ve çocuklarının pandemi algısı. *Avrasya Sosyal ve Ekonomi Araştırmaları Dergisi, Covid-19 Özel Sayısı* 2, 204–220.
- Denzin, N. K., & Lincoln, Y. S. (2008). *The Landscape of Qualitative Research*. Sage.

- Di Giorgio, E., Di Riso, D., Mioni, G. & Cellini, N. (2020). The interplay between mothers' and children behavioral and psychological factors during COVID-19: An Italian study. *European Child & Adolescent Psychiatry*. Retrieved November 01, 2021, from <https://doi.org/10.1007/s00787-020-01631-3>
- Duffy, M. E. (1985). Designing Nursing Research: The Qualitative-Quantitative Debate. *Journal of Advanced Nursing*, 10(3), 225–232.
- Erikson, E. H. (1950). *Childhood and society*. Norton.
- Feldmann, H., & Geisbert, T. W. (2011). Ebola haemorrhagic fever. *Lancet*, 377(9768), 849–862. [https://doi.org/10.1016/S0140-6736\(10\)60667-8](https://doi.org/10.1016/S0140-6736(10)60667-8)
- Fraenkel, J. R., & Wallen, N. E. (2009). *How to Design and Evaluate Research in Education* (7th ed.). McGraw-hill.
- Ghosh, R., Dubey, M. J., Chatterjee, S. & Dubey, S. (2020). Impact of COVID-19 on children: Special focus on psychosocial aspect. *Minerva Pediatrics*. <https://doi.org/10.23736/S0026-4946.20.05887-9>
- Giannini, S. & Albrechtsen, A. B. (2020). *Covid-19 school closures around the world will hit girls hardest*. Retrieved November 03, 2020, from <https://en.unesco.org/news/covid-19-school-closures-around-world-willhit-girls-hardest>
- Giannini, S. & Lewis, G.S. (2020). *Three ways to plan for equity during the coronavirus school closures*. Retrieved July 28, 2020, from <https://gemreportunesco.wordpress.com/2020/03/25/three-ways-to-plan-forequity-during-the-coronavirus-school-closures>
- Girard, M. P., Tam, J. S., Assossou, O. M., & Kiény, M. P. (2010). The 2009 A (H1N1) influenza virus pandemic: A review. *Vaccine*, 28(31), 4895–4902. <https://doi.org/10.1016/j.vaccine.2010.05.031>
- Gokuladas, V. K., & Baby Sam, S. (2020). Psychological and Operational Challenges in Educational Field amidst Pandemic. *Revista Romaneasca Pentru Educație Multidimensională*, 12(2), 143–151.
- Grubic, N., Badovinac, S. & Johri, A. M. (2020). Student mental health in the midst of the COVID-19 pandemic: A call for further research and immediate solutions. *International Journal of Social Psychiatry*. Retrieved October 10, 2020, <https://doi.org/10.1177/0020764020925108>
- Guba, E. G., & Lincoln, Y. S. (1982). Epistemological and Methodological Bases of Naturalistic Inquiry. *Educational Technology Research and Development*, 30(4), 233–252.
- Hatun, O., Dicle, A. N., & Demirci, İ. (2020). Koronavirüs salgınının psikolojik yansımaları ve salgınla başa çıkma. *Turkish Studies*, 15(4), 531–554.
- Hekler, E. B., Lambert, J., Leventhal, E., Levetthal, H., Jahn, E., & Contrada, R. J. (2008). Commonsense illness beliefs, adherence behaviors and hypertension control among african americans. *Journal of Behavioral Medicine*, 31, 391–400.
- Holt-Lunstad, J. (2017). The potential public health relevance of social isolation and loneliness: Prevalence epidemiology and risk factors. *Public Policy & Aging Report*, 27(4), 127–130. <https://doi.org/10.1093/ppar/prx030>
- Huppert, G. (1998). *After the Black Death: A Social History of Early Modern Europe*. Indiana University Press.
- Imran, N., Zeshan, M. & Pervaiz, Z. (2020). Mental health considerations for children & adolescents in COVID-19 Pandemic. *Pakistan Journal of Medical Sciences*, 36 (Covid19-S4), 67–72.
- Jiao, W. Y., Wang, L. N., Liu, J., Fang, S. F., Jiao, F. Y., Pettoello-Mantovani, M., & Somekh, E. (2020). Behavioral and emotional disorders in children during the COVID-19 epidemic. *The Journal of Pediatrics*. <https://doi.org/10.1016/j.jpeds.2020.03.013>
- Jackson, K. M., & Trochim, W. M. K. (2002). Concept mapping as an alternative approach for the analysis of open-ended survey responses. *Organizational Research Methods*. <https://doi.org/10.1177/109442802237114>
- Karataş, Z. (2020). *COVID-19 pandemisi sürecinin LGS ve YKS sınavına hazırlık sürecinde olan çocuk ve ergenlerin psikolojilerine yansımalarının incelenmesi*. Gençdoğan B., (Editör). Pandemi Döneminde Çocuk ve Ergen Psikolojisi. (ss: 54–74). 1. Baskı: Türkiye Klinikleri.
- Khalilzadeh, S., & Khodi, A. (2021). Teachers' personality traits and students' motivation: A structural equation modeling analysis. *Current Psychology*, 40, 1635–1650. <https://doi.org/10.1007/s12144-018-0064-8>
- Khodi, A. (2016). Empowerment of refugees by language: Can ESL learners affect the target culture? *TESL Canada Journal*, 33(10), 129–137.
- King, D. L., Delfabbro, P. H., Billieux, J. & Potenza, M. N. (2020). Problematic online gaming and the COVID-19 pandemic. *Journal of Behavioral Addictions*, (online publication). Retrieved, November 11, 2020, from <https://doi.org/10.1556/2006.2020.00016>.
- Klavir, R. & Hershkovitz, S. (2014). *Teaching and evaluating 'open-ended' problems*. ResearchGate.
- Kundi, B. & Bhowmik, D. (2020). *Societal impact of novel corona virus (COVID-19 pandemic) in India*. Retrieved October, 20, 2020, from <https://doi.org/10.31235/osf.io/vm5rz>.
- Kurt Demirbaş, N. & Sevgili Koçak, S. (2020). 2-6 yaş arasında çocuğu olan ebeveynlerin bakış açısıyla covid-19 salgın sürecinin değerlendirilmesi. *Avrasya Sosyal ve Ekonomi Araştırmaları Dergisi*, 7(6), 328-349
- Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology*. <https://doi.org/10.1111/j.1744-6570.1975.tb01393.x>
- Levina, M. (2020). *Central Asia countries switch to remote learning amid COVID-19 outbreak*. Retrieved May 23, 2021, from <https://www.timesca.com/index.php/news/26-opinion-head/22322-central-asia-countries-switch-to-remote-learning-amid-covid-19-outbreak>
- Lewis, S. (2015). Qualitative Inquiry and Research Design: Choosing Among Five Approaches. *Health Promotion Practice*, 16(4), 473–475.
- Littman, R. J. (2009). The plague of Athens: Epidemiology and paleopathology. *The Mount Sinai Journal of Medicine*, 76(5), 456–467. <https://doi.org/10.1002/msj.20137>
- Mant, M., Holland, A., & Prine, A. (2021). Canadian university students' perceptions of COVID-19 severity, susceptibility, and health behaviours during the early pandemic period. *Public Health in Practice*, 2, 100114.
- Perdana, R., Riwayani, R., Jumadi, J. & Rosana, D. (2019). Development, Reliability, and Validity of Open-ended Test to Measure Student's Digital Literacy Skill. *International Journal of Educational Research Review*, 4(4), 504–516. <https://doi.org/10.24331/ijere.628309>
- T. C. Ministry of National Education (MEB) (2012). *19.05.2012 tarihli "12 Yıllık Zorunlu Eğitime Yönelik Uygulamalar"*. Circular numbered: B.08.0.ÖKM. O.OO-00.00/401
- T. C. Ministry of National Education (MEB) (2021a). *Uzaktan eğitim araçları*. Retrieved May 25, 2021a, from <https://uzaktanegitim.meb.gov.tr/>
- T. C. Ministry of National Education (MEB) (2021b). *Sayılarla uzaktan eğitim: "Uzaktan eğitimin adresi EBA..."*. Retrieved May 25, 2021b, from <http://yegitek.meb.gov.tr/www/sayilarla-uzaktan-egitim/icerik/3220>
- Miles, M., & Huberman, A. (1994). *Qualitative data analysis*. Sage.
- Morens, D. M., Folkers, G. K., & Fauci, A. S. (2009). What is a pandemic? *The Journal of Infectious Diseases*, 200(7), 1018–1021. <https://doi.org/10.1086/644537>
- Neubauer, B. E., Witkop, C. T., & Varpio, L. (2019). How phenomenology can help us learn from the experiences of others. *Perspectives on Medical Education*, 8(2), 90–97. <https://doi.org/10.1007/s40037-019-0509-2>
- O'Reilly, A., Tibbs, M., Booth, A., Doyle, E., McKeague, B. & Moore, J. (2020). A rapid review investigating the potential impact of a

- pandemic on the mental health of young people aged 12–25 years. *Irish Journal of Psychological Medicine*, 1–16.
- Orru, G., Ciacchini, R., Gemignani, A., & Conversano, C. (2020). Psychological intervention measures during the COVID-19 pandemic. *Clinical Neuropsychiatry: Journal of Treatment Evaluation*, 17(2), 76–79.
- Qiu, J., Shen, B., Zhao, M., Wang, Z., Xie, B., & Xu, Y. (2020). A nationwide survey of psychological distress among Chinese people in the COVID 19 epidemic: Implications and policy recommendations. *General Psychiatry*, 33(2), 75–88.
- Rajkumar, R. P. (2020). COVID-19 and mental health: A review of the existing literature. *Asian Journal of Psychiatry*, 52, 102066. <https://doi.org/10.1016/j.ajp.2020.102066>
- Roberts, J. A., Pullig, C., & Manolis, C. (2015). I need my smartphone: A hierarchical model of personality and cell-phone addiction. *Personality and Individual Differences*, 79, 13–19. <https://doi.org/10.1016/j.paid.2015.01.049>
- Salameh, B., Basha, S., Basha, W. & Abdallah, J. (2021). Knowledge, Perceptions, and Prevention Practices among Palestinian University Students during the COVID-19 Pandemic: A Questionnaire-Based Survey. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, 58, 1-11. <https://doi.org/10.1177/0046958021993944>
- Savi-Çakar, F., & Uzun, K. (2021). Teacher abuse, school burnout and school attachment as predictors of adolescents' risky behaviors. *Pegem Eğitim Ve Öğretim Dergisi*, 11(1), 217–258.
- Schwartz, S. J., Zamboanga, B. L., Meca, A., & Ritchie, R. A. (2012). Identity around the world: An overview. *New Directions for Child and Adolescent Development*, 138, 1–18.
- Smalley, A. (2020). Higher education responses to coronavirus (COVID-19). Retrieved May 23, 2021, from <https://www.ncsl.org/research/education/higher-education-responses-to-coronavirus-covid-19.aspx#ED>
- Sprang, G., & Silman, M. (2013). Posttraumatic stress disorder in parents and youth after health-related disasters. *Disaster Medicine and Public Health Preparedness*, 7, 105–110. <https://doi.org/10.1017/dmp.2013.22>
- Stockman, L. J., Bellamy, R., & Garner, P. (2006). SARS: Systematic review of treatment effects. *PLoS Medicine*, 3(9), e343. <https://doi.org/10.1371/journal.pmed.0030343>
- Sofroneev, E. (2020). High alert due to coronavirus introduced throughout Russia. Retrieved May 25, 2021, <https://tass.ru/obschestvo/8027563>
- Souli, D. & Dilucca, M. (2020). *Knowledge, attitude and practice of secondary school students toward COVID-19 epidemic in Italy: a cross sectional study*. Retrieved November 15, 2020, from <https://doi.org/10.1101/2020.05.08.084236>.
- Suzanne, A. (2003). *A Pest in the Land: New World Epidemics in a Global Perspective*. Bibliovault OAI Repository, the University of Chicago Press.
- Taubenberger, J. K., & Morens, D. M. (2006). 1918 Influenza: The mother of all pandemics. *Emerging Infectious Diseases*, 12(1), 15–22. <https://doi.org/10.3201/eid1201.050979>
- The World Bank, (2020). *How countries are using edtech (including online learning, radio, television, texting) to support access to remote learning during the COVID-19 pandemic*. Retrieved May 20, 2021, from <https://www.worldbank.org/en/topic/edutech/brief/how-countries-are-using-edtech-to-support-remote-learning-during-the-covid-19-pandemic>
- Telesra, H. (2020). Educational Responses to the Pandemic in India. *Journal of the Commonwealth Council for Educational Administration & Management*, 48(1), 85–91.
- United Nations, Educational, Scientific and Cultural Organization (UNESCO) (2020a). *School closures caused by Coronavirus (Covid-19)*. Retrieved July 22, 2020a, from <https://en.unesco.org/covid19/educationresponse>
- United Nations, Educational, Scientific and Cultural Organization (UNESCO) (2020b). *Exams and assessments in COVID-19 crisis: fairness at the centre*. Retrieved May 23, 2021, from <https://en.unesco.org/news/exams-and-assessments-covid-19-crisis-fairness-centre>
- Ünal, R. (2022). Covid-19 Pandemi Döneminde Geçici Koruma Altındaki Suriyeli Öğrencilerle Gerçekleştirilen Uzaktan Eğitim Sürecinin Değerlendirilmesi. *Journal of Interdisciplinary Education: Theory and Practice*, 4(1), 34–52. <https://doi.org/10.47157/jietp.1034907>
- Veriava, F. (2020). *Education must continue throughout the pandemic*. Retrieved May 25, 2021, from <https://www.dailymaverick.co.za/article/2020-03-29-education-must-continue-throughout-the-pandemic/>
- Wilson, R. & Mude, W. (2020). *Australian schools are closing because of coronavirus, but should they be?* Retrieved May 15, 2021, from <https://theconversation.com/australian-schools-are-closing-because-of-coronavirus-but-should-they-be-133432>
- Witt, A., Ordonez, A., Martin, A., Vitiello, B., & Fegert, J. M. (2020). Child and adolescent mental health service provision and research during the Covid-19 pandemic: Challenges, opportunities, and a call for submissions. *Child and Adolescent Psychiatry and Mental Health*, 14(19), 1–4.
- World Health Organization (WHO) (2020). *2019 Novel Coronavirus (2019-nCoV): strategic preparedness and response plan*. Retrieved November 25, 2020, from <https://www.who.int/docs/default-source/coronaviruse/srp-04022020.pdf>
- Yıldırım, A., & Şimşek, H. (2018). *Sosyal bilimlerde nitel araştırma yöntemleri*. Ankara: Seçkin Yayıncılık.

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