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Özgün araştırma

COVID-19 Pandemisi Az Gören Çocukları Nasıl Etkiledi: Okupasyonel Bir Bakış Açısı

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Öz

Amaç: COVID-19 pandemisi ile birlikte az gören çocukların özel gereksinimleri ortaya çıkmıştır. Bu çalışma, az gören çocukların bakış açısıyla pandemi sürecindeki okupasyonel deneyimlerini ortaya koymayı amaçlamıştır.
Gereç ve Yöntem: Bu araştırma, eşzamanlı dönüşümsel karma desenli bir araştırma olarak tasarlanmıştır. Demografik bilgi formu ve nitel verileri desteklemek amacıyla oluşturulan çevrimiçi anket Google Formlar aracılığıyla, nitel veriler telefon görüşmesi/Zoom/Skype aracılığıyla yarı yapılandırılmış görüşmeler ile toplandı.
Bulgular: Bu çalışmaya az gören 38 çocuk ve ailesi dahil edildi. Az gören çocukların eğitim veya tedavi/rehabilitasyon süreçleri pandemiden olumsuz etkilenmiştir. Okul çağında ve çoklu engele sahip olmayan az gören çocukların sosyal etkileşim ve katılım düzeylerinin azalması, sosyal iletişim ve etkileşimin sınırlı olması, aktivite çeşitliliği ve performansında azalma, uyku düzenini olumsuz etkilediği bulundu. Çocuklar, akranları için çok önemli olan okul ve oyun etkinliklerine katılımda sınırlamalar yaşamışlardır.
Sonuç: Pandemi öncesinde özel ihtiyaçları olan az gören çocukların artık hayata tam olarak katılmaları için yeni destek sistemleri ve düzenlemeleri gerektiren ek sorunları ortaya çıkmıştır. Bu çocukların özellikle eğitim ve rehabilitasyon faaliyetlerine katılımları konusunda özel adaptasyon ve yapılandırmalara ihtiyaç vardır.

Anahtar Kelimeler: *COVID-19, pandemi, az gören, çocuk, ergoterapi*

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Original Research

How the COVID-19 Pandemic Affected the Children with Low Vision: An Occupational Perspective

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Abstract

Objectives: Specific needs of children with low vision have emerged during the COVID- 19 pandemic. This study aimed to reveal the occupational experiences during the pandemic period from the perspectives of children with low vision.
Materials and Methods: The present study was designed as a concurrent transformative mixed design study. The demographic information form and an online survey which was prepared to enhance the results of the qualitative data, were applied through Google Forms. Semi-structured interviews with qualitative data were collected via telephone conversation / Zoom / Skype according to the personal communication preferences of the families.
Results: 38 children with low vision and their families were included in this study. Education or treatment/rehabilitation processes of children with low vision have been adversely affected by the pandemic. It was found that the decrease in social interaction and participation levels, limited social communication and interaction, reduced activity variety and performance, and sleep patterns were negatively affected by low vision children at school age and without multiple disabilities. Children have experienced limitations in their participation in school and play activities that are very important to their age group.
Conclusion: Prior to the pandemic, children with low vision with special needs have additional problems that require new support systems and arrangements to fully participate in life. There is a need for special adaptations and structuring, especially for the participation of these children in education and rehabilitation services.

Keywords: *COVID-19, pandemic, low vision, child, occupational therapy*

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Introduction

In March 2020, the World Health Organization (WHO) declared the COVID-19 outbreak a pandemic (Jebril, 2020). The pandemic has brought strict quarantine measures in many countries. To prevent the disease, personal hygiene measures, social distancing rules, the widespread use of personal protective equipment, and home quarantines have become a routine part of daily life Although the measures applied during the epidemic process protect many people from getting the disease, the long-lasting quarantine process has begun to negatively affect individuals' physical, mental, and occupational health (Gao et al., 2020; Hammami et al., 2020). It is estimated that approximately three million children are affected by low vision globally (Negiloni et al., 2018). The causes of low vision in children are categorized according to both etiology and the location of the abnormality in order to have a uniformity in reporting its prevalence (Gilbert et al., 1993). Like many individuals, the pandemic has also affected individuals with low vision. In a study conducted in India, it was stated that if individuals with visual impairment are affected by COVID-19, morbidity and mortality rates will most likely be higher than the other parts of the society (Allen & Smith, 2020).

It is reported that other sensory systems such as tactile/haptic, olfactory, and auditory systems are used more effectively in daily life due to vision loss in individuals with low vision (Li et al., 2019; Sorokowska et al., 2019; Thevin & Brock, 2018). Researchers hypothesize that such abilities may result from sensory compensation, i.e., increased sensitivity of functional modalities resulting from a lack of one or more senses (Kupers et al., 2011). Due to the widespread use of personal protection measures, it has become a necessity to minimize physical contact altogether. However, this situation has limited olfactory and tactile sensory stimuli by individuals with low vision in daily life. This situation may affect individuals' daily activities, from social mobility to educational activities or social communication skills (Senjam, 2020), the routine educational activities for children with low vision were frequently carried out with assistive devices such as magnifiers or large print. However, the online education approaches that have become widespread during the epidemic relay information mostly with web-based visual elements (i.e., Zoom meetings), and the accessibility capabilities of these new teaching tools for individuals with low vision are still unclear (Kalaç & Erönal, 2020).

Children with special needs are children who are at risk or have physical, developmental, behavioral or emotional conditions that require some type or amount of health and related services beyond the children's general needs (Abaoğlu & Aki, 2019). Specific needs of children with low vision have emerged during the pandemic period. The COVID-19

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pandemic has caused dramatic changes in everyone's daily routines. All schools and education/recreation services had to close during the quarantine, as well as pediatric rehabilitation and support services. Everyone had to reorganize their daily lives and daily routines, including all children. However, children with special needs, including children with blind or low vision, have been most affected by this dramatic change in both their daily rhythms and learning ways (Battistin et al., 2021). It has been reported that the lack of adequate personal hygiene and environmental cleanliness among individuals with vision problems may increase the risk of infection even more. For example, in a study conducted in schools for the visually impaired in Egypt, it was shown that a significant number of students had insufficient knowledge about handwashing, face and ear care, oral hygiene, changing clothes, and cutting nails. It suggests that individuals with low vision may be more affected by the pandemic and more susceptible to infection (Senjam, 2020). In addition, it is thought that the restriction of access to eye health services due to the pandemic may also worsen the visual impairment, which may further increase the severity of the disability (Kyari & Watts, 2020). This study aimed to reveal the occupational experiences during the pandemic process from the perspectives of children with low vision.

Method

Study Design and Ethical Considerations

The present study was designed as a descriptive mixed design study. The data collection phase of the research was carried out between July 2020 and December 2020. The study was approved by the local institutional ethical board (Hacettepe University Non-Interventional Clinical Research Ethics Committee, registration number GO 20/1118), and it was also examined and approved by the Turkish Ministry of Health (File number: 26T15_03_14) because, at the time of designing the study, it was necessary to get an approval from the Ministry of Health for COVID-19 pandemic related scientific studies. The procedures used in this study adhere to the tenets of the Declaration of Helsinki.

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Participants

The sample of the study consisted of children with low vision followed-up in Hacettepe University Faculty of Health Sciences Occupational Therapy Department. Convenience sampling method was used, and Thirty-eight individuals were included in the study. The children and their families were interviewed via social networks (e-mail / Whatsapp / Zoom / Skype). Inclusion criteria in the study were having low vision and being younger than 18 years of age. Although, also having additional motor, sensorial or behavioural impairments, the children with cortical visual impairments (CVI) were included in the study as CVI represents a large sample in children with visual impairments (Boonstra, 2012). Forty-three families were interviewed. Those who did not complete the semi-structured interview (n = 3) and children with total blindness (n = 2) were excluded from the study.

Procedure

The study sample was formed by the children with low vision and their families who were followed up in Hacettepe University Faculty of Health Sciences Occupational Therapy Department. The invitations containing the research content were sent online to the families who were followed before. The survey forms were created with Google Forms and sent to families who consented to participate via e-messages such as e-mail and other online messaging services. Evaluations were conducted with individuals through online forms and phone calls due to the COVID-19 pandemic. The concurrent transformative method was selected as the mixed-method design of the study. While the qualitative and quantitative data were collected at the same time, the qualitative information was given more importance than the quantitative information (Creswell et al., 2004). The demographic information form and an online survey which was created by the authors GG, TD, and EA were collected through Google Forms. Semi-structured interviews were held via telephone conversation / Zoom / Skype according to the personal communication preferences of the families were made by GG. The interviews were recorded with the primary caregivers' permission.

Instruments:

Demographic information form*:*

The child's visual condition, age, gender, whether he/she attended school, whether he/she participated in online education, and whether he/she has any other accompanying illnesses (such as epilepsy, cerebral palsy, or autism) were asked. The gender of the primary caregiver, the number of people living at home, and personal contact information were questioned.

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Semi-Structured interviews:

Seven steps in Colaizzi's descriptive phenomenological method were used to analyze the data and find themes and subthemes reported by the primary caregivers of children with low vision (Edward & Welch, 2011). Telephone calls or online video meetings (Zoom) were held according to the access status of the primary caregivers. Each meeting lasted about 30 minutes. During the interviews, voice or video recordings were taken with the participants' permission.

The research team and reflexivity:

All researchers had clinical experience working with children with low vision. In order to reduce data bias, qualitative interviews were conducted by GG, a researcher working at a different institution.

Interview questions and data collection:

Participants were informed in detail about the scope and objectives of the research before the meeting. Audio or video recording was used, with the parent's permission, to collect data during the interviews. During the interview and field notes were made. Each meeting lasted about 30 minutes. When it was thought that the data saturation was reached, the interviews were completed. Semi-structured interview questions asked to the participants were as follows:

- Q1: How was the COVID-19 pandemic process for you and your child? Do you think the COVID-19 pandemic affected children with vision problems more than other children?
- Q2: How do you think the social distancing measures, the widespread use of personal protective equipment (masks, visors, gloves, etc.), have affected children with vision problems?
- Q3: During the period spent at home, were there any activities your child wanted to do but had difficulty doing because of the pandemic? If so, could you please share with us what these are?
- Q4: How has your child's sleep pattern changed during the COVID-19 pandemic?

Online Survey:

Caracelli and Greene (1997) suggested that in mixed-method studies, results from one dominant design (i.e. qualitative) can be enhanced by another design (i.e. quantitative). For this reason, a survey was prepared by the researchers to complement the qualitative data. First, a question pool was created encompassing the potentially affected occupational and health domains of people with low vision using the current COVID-19 research in people with visual impairments (Chang & Lipner, 2020; Rickly et al., 2020; Senjam, 2020) as well as researchers'

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own clinical experiences. As the survey questions were designed to enhance the perspective of the qualitative approach, they were checked for the credibility, authenticity and thoroughness quality criteria per convergent validity criteria for the mixed-method studies (Collins, 2015). For that reason, the opinions of an expert psychologist and a biostatistician were also obtained during selecting and the wording of the questions, arranging the questions and transforming them into Likert-type items [Never; Very little; Moderately; Too much; Completely]. Sixteen questions were created.

Before conducting the survey, detailed information was given about occupations, occupational performance and the content of the survey. The questions of the families were asked as how the occupational or health aspects of their children changed compared to the pre-pandemic period.

Data analysis:

Quantitative data analysis

Statistical analyses were performed using SPSS software version 23.00. Descriptive statistics were used for demographic data and the survey. Descriptive analyses were presented using the mean and standard deviation, and frequencies. Frequency data were calculated for each question of the survey.

Qualitative data analysis

Data analysis and content analysis of the records were done by researchers GG, TD and EA. In this study, it was aimed to reveal the experiences of children with low vision, but qualitative data had to be examined in two groups to generalize the results. Group 1, children who were not of school age or children with additional physical/sensorial/behavioural disabilities (n=28); Group 2 consisted of school-aged children without additional physical/sensorial/behavioural disabilities (n=10). The group 1 needed more assistance due to the younger age and/or multiple disabilities. To identify the themes and sub-themes that emerged from the interviews for qualitative data analysis, the following seven steps in Colaizzi's descriptive phenomenological method were used to analyze the data and find the themes and sub-themes of the interviews: (1) familiarization, (2) identifying significant statements, (3) formulating meanings, (4) clustering themes, (5) developing an exhaustive description, (6) producing the fundamental structure, and (7) seeking verification of the fundamental structure (Edward & Welch, 2011). Before the interviews were written down, all authors met to discuss the analysis plan. A writer (GG) merged the interviews into a Microsoft

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Word document, and the identities of all participants have been removed to ensure confidentiality. Three researchers coded data independently. To increase credibility, theme development was provided, and a consensus was reached between at least two of these researchers collaborating during three rounds of coding. The co-authors (GG, TD, and EA) read the transcripts several times and identified specific expression categories. It was then assembled as a group to compare and contrast the statements. Each author independently completed a table listing for separate categories for all questions, noting the essential related statements and documenting ideas and possible themes. The authors determined the themes in a joint decision. Categories with several expressions were merged or removed with other categories, while categories associated with multiple key phrases were preserved. The remaining prominent categories have been re-read and clustered together with their associated basic expressions. Details on the emerging themes are summarized in Appendix 1 and Figure 1.

Results

Participant Characteristics

This study included 38 children with low vision. These children included 24 (63.1%) girls and 14 (36.9%) boys, with a mean age of 7,3 years (standard deviation (SD)= 5,17). Twenty (53%) of the children had accompanying diagnoses. While 23 (60.6%) of the children were at school age; Only 6 (22.8%) could continue online education. The children's characteristics are summarized in Table 1.

Results of qualitative data for Group 1:

Theme1: Decreased Socialization and social participation levels

During the qualitative interview, one of the themes that the families mentioned most was about the children's social participation. The frequent use of tactile stimuli by children with low vision during social communication and interaction created limitations in social relations during the pandemic period.

"Yes, it affected social participation; socialization was almost non-existent. My child was learning everything by touch. Most of the new experiences are not available. The children are deprived of situations that might attract their attention" (Participant 13).

Table 1: Demographic characteristics of children with low vision **(N=38)**

Age	
Mean ±SD	7,3±5,17
	N (%)
Gender	

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Girl	24 (63.1%)
Boy	14 (36.9%)
Kinship of the caregiver	
Mother	30 (78.9%)
Father	8 (21.1%)
Number of people living in the house	
3	12 (31.5%)
4	12 (31.5%)
>5	14 (37%)
Any other accompanying diagnosis (such as epilepsy/cp/autism)	
Yes	20 (53%)
No	18 (47%)
Is the child at the school-age?	
Yes	23 (60.6%)
No	15(39.4%)
Can the child participate in online education?	
Yes	6 (22.8%)
No	17 (77.2%)

Theme 2: Limited Social communication and interaction

Social communication and interaction were negatively affected. As the sensory stimuli decreased, the level of independence decreased, especially in participation in activities involving social contact.

"My child often gets too close to see objects and people. But since there are social online rules, I always keep her away (from other children). She cannot play games anymore because she should not get close to other children" (Participant 27).

Theme 3: Decreased occupational variety and performance

Children experienced limitations, especially in activities related to playing games and education, which are basic productivity activities. Families stated that children's need for care and support increased during the pandemic. Children experienced limitations, especially in activities related to playing games and education, which are basic productivity activities. It was frequently stated that children's vision was negatively affected, especially when using personal protectors such as medical masks and visors. Therefore, they participated less in outdoor activities due to both restrictions and personal safety.

"The mask causes the child's glasses to fog up. It has become more difficult for him to see" (Participant 36).

"We had much trouble with the online classes as my child would not look at the screen for a long time" (Participant 19).

Theme 4: Negatively affected sleep pattern

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Changes in children's roles and routines caused sleep patterns to deteriorate. Due to the interruption of face-to-face education, the inconsistencies and restrictions in online education adaptation processes, and the inability to participate in outdoor activities, the disrupted daily occupational patterns and roles also affected children's sleep times.

"During the pandemic, sleep hours became irregular due to the lack of school" (Participant 36).

Results of qualitative data for Group 1:

Theme1: Lifestyle changes that are not vision-specific

It has been reported that there is less change and influence in lifestyles, especially for young children and children with multiple disabilities. Families stated that the change affected not only the children but also the whole family.

"This pandemic process has affected all of our lives, in terms of seeing it was not a problem for us" (Participant 1).

Theme 2: Less variation in daily routines

Parents of children with multiple disabilities or those with limited diversity in their daily occupations, such as feeding and sleeping, stated that they were less affected by the restrictions. Children and their families whose daily routines do not change are less affected by restrictions and measures.

"Since my child is dependent on bed, we weren't very impressed" (Participant 4).

"We were always at home with my baby. We were not very impressed" (Participant 7).

Theme 3: Unchanged variety of activities and functional independence levels

Children whose daily routines do not change and their families stated that they did not experience new occupational experiences. It was stated that children who have a low level of independence in their activities of daily living and who receive support from their parents continue to provide support during the pandemic.

"Nothing has changed for us. We couldn't get out much in the past" (Participant 4).

Theme 4: Indifferent sleep pattern

It was stated that there was not much change in the number of hours required for daily occupations for children with multiple disabilities or babies.

"Since my child is a baby, the sleeping hours did not change" (Participant 37).

Common themes for both Group 1 and Group 2

Theme 5: Negatively affected education and rehabilitation processes

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The pandemic had a negative impact on education, both for children who could not go to school due to their age and disability and for school-age children. Suspending special education practices and rehabilitations caused problems for both groups; The transition to online education for school-going children caused serious participation problems in school participation.

"I think the vision problem has affected us even more because online therapies have started in our institution, but unfortunately, my child cannot attend these sessions because of the vision problem" (Participant 5).

"Especially my child's school processes were greatly affected. Yes, the pandemic is a global problem and concerns everyone, but I think our children have been affected much more by this process. The school is now completely online education. They have lessons for at least 8 hours a day, but it is almost impossible for my child to follow such a visual system on the computer screen. Most of them do not understand the lesson. I think special measures should be taken for our children" (Participant 36).

Online survey results of the children with low vision:

Survey response frequencies were reported separately for Group 1 and Group 2 to complement the qualitative data. Frequency data of the Likert-type answers to the questions in the survey were presented in Appendix 2 and Appendix 3 for Group 1 and Group 2, respectively.

Caregivers of Group 1 reported that 14.3% of the children's physical health and 21.5% of the children's eye health was affected during the pandemic, and 32.1% of them had their routine eye examinations delayed. 60.7% of the children started to give negative emotional reactions, 42.5% were unhappier than before the pandemic. One-third (32.1%) of the children had less variety in activities than before the pandemic, and 50% had less interest in activities. Parents reported that 42.9% of the children needed more help with daily activities. Of all the children, 35.8% had more difficulty performing regular daily activities, and 17.9% started to take on new tasks. The leisure participation of 64.3% of them had a decrease. Half of the children (50%) 's social interactions outside the family decreased, and 57.1% had a more difficult time in crowded places outside. It was seen that 42.9% of the children's interest in their peer activities decreased. The sleep pattern of 42.9% of them was disturbed.

Caregivers of Group 2 reported that 30% of the school-age children with low vision had their physical health affected. According to parents, 10% of the children's eye health was affected during the pandemic, and 30% said that children's routine eye examinations were

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delayed. 60% of the children had more negative emotional reactions, and 50% were unhappier than pre-pandemic period. 70% of the children had less variety in activities than before the pandemic, and 70% had less interest in activities. Parents reported that 80% of the children needed more help with daily activities. Of all the children, 20% had more difficulty performing basic daily activities, and 10% started to take on new tasks. Half (50%) of the children had a decrease in leisure participation. 80% had their social interactions outside of the family decreased, and 80% had a more difficult time in crowded places outside. It was seen that 80% of the children's interest in their peer activities decreased. The sleep pattern of 20% of them was disturbed.

Discussion

The main finding of this study was that the education or healthcare/rehabilitation processes of children with low vision were adversely affected by the pandemic. These findings are confirmed by both qualitative findings and survey results. With the COVID-19 pandemic, treatment and rehabilitation services have been restricted in many countries. Various healthcare services that were not considered urgent were suspended, especially in the early stages of the epidemic. However, this situation also disrupted the routine examinations of children with low vision (Gupta et al., 2020; Rajavi et al., 2020). The pandemic has also led to changes in ophthalmological examinations. Telemedicine and teleconsultation methods or other new technologies are rapidly becoming widespread in developed countries, aiming to protect patients from infections while performing routine eye examinations (Daruich et al., 2020; Kyari & Watts, 2020; Sommer & Blumenthal, 2020). However, these practices are not yet common in developing countries such as Turkey. For this reason, while families often stated that they did not think that children's eye health was negatively affected, nearly one-third of the families in our study reported a delay in medical visits, which may lead to unnoticed health problems by the caregivers. Disrupted examinations may pose a risk to children with progressive vision loss. The mother of a baby with epilepsy, who was among the participants, stated that she was worried about the decrease in her child's vision as the epileptic seizures became more frequent. The COVID-19 pandemic also affected the children's attendance to the visual rehabilitation services. The restriction of access to face-to-face rehabilitation in the pandemic has led to the use of alternative methods such as telerehabilitation (Önal et al., 2021). However, the main concern of the families was whether their children would benefit enough from these rehabilitation methods because they were mostly visual-oriented. Similarly, it has been stated that online education processes for school-age children with low vision seriously affect

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children's school participation. The concept of online education, which entered our lives with the pandemic, may continue for a longer time. Education and school participation in the pandemic were among the most frequently expressed problems by families. Many families stated that their children had more difficulty in online lessons than their classmates. Families state that the school performance of their children, who do not have special adaptations for children with vision problems and who cannot spend a long time in front of the screen, also decreases. Individuals with low vision may also face difficulties accessing information when online class platforms are not suitable for visual aids (Senjam, 2020). Access to web-based information resources is limited for both children and adults with low vision. It is thought that digital accessibility studies for low vision users are insufficient worldwide (Alcaraz-Martínez & Ribera-Turró, 2020). However, with the pandemic, visual-based online education applications have become the main productivity activity of children, especially in Turkey. Most of the parents in our study stated that their school-age children with low vision could not attend online education.

Children with low vision, who already had difficulties participating in education, should not be ignored. Governments and other education-related decision-makers should consider expanding their education support policies for children with vision impairments.

Several previous studies have shown that COVID-19 and quarantine can adversely affect the mental health of adults, children, and healthcare professionals in general (Brooks et al., 2020; Patel, 2020), but the psychosocial impact of the pandemic on children with low vision was unclear. The findings of this study revealed that the emotional responses of children with low vision were negatively affected due to the pandemic. Primary caregivers stated that most children started to give negative emotional responses (e.g., introversion, irritability, emotional fragility, or talking more than usual), and the children were less happy than before. (Ting et al., 2021) highlighted the importance of recognizing individuals with low vision as a vulnerable population during the pandemic and providing additional psychosocial support, as COVID-19 lockdown can have a significant negative psychosocial impact on people with low vision. It is a fact that the pandemic negatively affects the mental health of many individuals. However, the pandemic period has created new unique needs for children with low vision, a group who were already vulnerable before the pandemic.

Another problem frequently expressed by primary caregivers of children of school age was that children's social participation and social communication and interaction skills were limited. Our survey results showed that school-aged children with low vision had been affected by the

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pandemic more than the children who either did not attend school or the ones with multiple disabilities. People with vision loss mostly use tactile stimuli in daily life. However, the additional need to use the sense of touch, especially for outdoor activities, poses a greater risk of infection (Chang & Lipner, 2020; Senjam, 2020). Primary caregivers of schoolchildren with low vision reported that they were afraid to take or send their children out. It has been stated that this was not the case for younger children or children with multiple disabilities. We suspect that it might be since the school children with no multiple disabilities were already participating more in social and outside activities. However, considering that the participation of all the children in the social and institutional environment, such as rehabilitation centres or visits to relatives, showed a decrease, we think that the children with low vision may need social interaction support in the later stages of the pandemic.

Children of school age and without multiple disabilities reported more change in the limitations, especially in activities related to playing games, peer interaction and education, which are among the basic productivity activities of children. Many primary caregivers feel that their children are more vulnerable to getting COVID-19. While preventive and personal protective measures such as wearing a face mask and handwashing require visual function (Senjam, 2020), the misuse of protective equipment, the frequent use of tactile stimuli, and increasing contact with the environment may pose additional risks for children with low vision. The Center for Disease Control recommends standing six feet away from other people. However, many individuals with low vision may have trouble perceiving and adjusting to the distancing rules (Chang & Lipner, 2020). For this reason, primary caregivers may hesitate to allow their children with low vision to participate in the social environment. The caregivers of children who are not of school-age or with multiple disabilities stated that they were not affected much compared to the pre-pandemic period. Considering that these children had low levels of independence in activities of daily living and limited occupational diversity before the pandemic, it can be said that this finding was expected. Future studies are needed to explore the unique participation needs of the children with low vision who require more assistance from their parents in the pandemic period.

It has been stated that most people have sleep problems during the pandemic process. Cellini et al. (2020) proved that with going to bed and waking up later, and spending more time in bed during the lockdown, the sleep-wake rhythm changed in teenagers. In our study, it was found that the sleep quality of children with low vision was affected. In another study conducted by Rickly et al. (2020) in adults with low vision, it was reported that the participants had sleep

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problems due to the pandemic. The changes to children's sleep times and disruption of the sleep-wake cycles may be overlooked by most families. However, we think that studies investigating the sleep quality of children with low vision in detail are needed.

Declaration of conflicting interests

The authors confirm that there is no conflict of interest.

Statement of contributorship

All authors contributed to the development of the study methodology, data collection and analysis. All authors participated in writing, reviewing and editing the manuscript, and approved the final version.

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