Turkish Journal of Pediatric Disease

Original Article

Mobile media exposure in early childhood: patterns, risks, and parental insights

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ABSTRACT

Objective: This study aimed to assess the extent and patterns of mobile media exposure in children aged 1–24 months and examine the parental practices and beliefs associated with its use. Understanding these factors is crucial for developing preventive strategies and informing public health policies.

Material and Methods: A cross-sectional study was conducted at Ankara Bilkent City Hospital, including 404 parents of children aged 1–24 months. Data were collected using a 48-item self-administered questionnaire addressing demographics, mobile media usage patterns, and parental attitudes. Statistical analysis was performed using SPSS 23.0, with chi-square and non-parametric tests applied to identify significant associations.

Results: Mobile media exposure was reported in 65.8% of children, with 10.9% exposed as early as 3 months. Daily usage increased with age, with 9.8% exceeding two hours. Children with siblings had significantly higher exposure rates (p=0.020). Despite 91.4% of parents recognizing the potential harms of mobile media, 63.2% perceived its educational benefits. Notably, parental education and income levels did not show significant associations with exposure, whereas parental awareness about media risks correlated with reduced screen time usage (p = 0.010). Video calls were a frequent exception, with 86.8% of parents engaging in them, considering them less harmful.

Conclusion: Mobile media exposure in children under two years is alarmingly high, often surpassing recommended limits. These findings highlight the urgent need for comprehensive public health policies focusing on parental education and awareness programs. Pediatricians should play a proactive role in counseling families about screen time risks and appropriate digital engagement. Considering the widespread use of video calls, updated guidelines may be necessary to differentiate their impact from passive screen exposure. Future research should explore broader socioeconomic and environmental factors to refine intervention strategies.

Keywords: Early childhood, Mobile media exposure, Screen time

INTRODUCTION

Mobile technologies have become increasingly prevalent in children's lives, with mobile devices, particularly smartphones, playing a significant role (1). In the United States, children aged 8–12 spend an average of 4–6 hours per day on screen media, while adolescents aged 12 and above spend 7–10 hours daily (2–4). While appropriate content and educational programs can support the development of cognitive and social skills, excessive screen time is associated with problems.

Excessive mobile media exposure in early childhood has been associated with adverse biological and psychosocial outcomes. Studies suggest that early and prolonged screen exposure may disrupt neurocognitive development, particularly executive functions, language acquisition, and attention regulation (5). Additionally, excessive screen time has been linked to sleep disturbances, increased obesity risk, ocular health issues, and posture-related concerns (6). From a psychosocial perspective, excessive mobile media use may reduce parent-child interaction, hinder socio-emotional development, and contribute to behavioral issues such as impulsivity and emotional dysregulation (7). Furthermore, limited real-world social engagement in favor of screen-based interactions may negatively impact empathy and peer relationships (8). Given these potential risks, parental guidance and structured media use policies are essential in mitigating adverse developmental consequences (5,6).

To address these concerns, scientific organizations, including the American Academy of Pediatrics (AAP), the World Health Organization (WHO), and the Italian Pediatric Society, have issued guidelines discouraging mobile media exposure in children under two years old (9–13). The AAP explicitly

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Received : 13.01.2025
Accepted : 15.04.2025
DOI:

recommends that children younger than 18 months should avoid screen media use, except for video chatting, and for children aged 18–24 months, digital media should only be introduced with high-quality content and under parental supervision (12,14). Similarly, the Centers for Disease Control and Prevention (CDC) advises against screen time for children under 2 years, emphasizing that early childhood development is best supported through hands-on play and social interactions with caregivers rather than passive media consumption (15).

Despite these recommendations, research indicates that many parents permit screen exposure as early as the first year of life, reflecting a trend of over-tolerance (4,16–19). Similarly, a study by Kılıç et al. (20) in Türkiye found that parents introduce their children to mobile devices at an early age. This aligns with national data, as reports from the Turkish Statistical Institute (TÜİK) indicate a sharp increase in internet usage among children, rising from 82.7% in 2021 to 91.3% in 2024. Notably, internet usage among boys increased from 83.9% to 92.2%, while for girls, it rose from 81.5% to 90.3% over the same period (21). These findings highlight the growing digital exposure among young children, emphasizing the need for stricter parental guidance and public health interventions.

Understanding early mobile media exposure is critical for shaping preventive public health policies aimed at promoting the well-being of young children. This study seeked to evaluate mobile media (mobile phones and tablets) exposure in children aged 1–24 months, a population for whom mobile media use is not recommended. The findings aimed to provide insight into the underlying factors contributing to early exposure and inform strategies for intervention.

MATERIALS and METHODS

This cross-sectional survey study was conducted at Ankara Bilkent City Hospital's Children's Hospital between November 1, 2022, and January 20, 2023, involving children aged 1–24 months and their parents. Parents were informed about the study, provided informed consent, and voluntarily completed a supervised questionnaire without interference. No financial incentives were offered. If parents had multiple children meeting the inclusion criteria, they completed the questionnaire for the youngest child. Exclusion criteria included children with physical, developmental, neurological, or psychological disorders, as well as cases where a non-parent guardian accompanied the child.

The sample size was determined through a power analysis using GPower software. With a significance level of 0.050 and a statistical power of 90%, the minimum required sample size was calculated as 384 participants. To compensate for possible missing data, a total of 477 participants were recruited, and after exclusions, data from 404 participants were analyzed.

A self-completion 48-item questionnaire in the Turkish language that was adapted from previous studies was used to collect data from parents (4,16,17,20,22,23). The questionnaire included open-ended, yes/no, and multiple-choice questions. The questionnaire was reviewed by a senior faculty member (SS) for clarity and comprehensibility; however, formal validity and reliability testing were not conducted, as it was a survey designed to assess parental practices rather than a standardized scale.

The questionnaire captured demographic data including the child's age and gender, parents' ages and education levels, monthly income (categorized as income equal to, less than, or more than expenditure), and total number of children in the family.

To evaluate children's mobile media usage (e.g., mobile phones and tablets), questions addressed the types of devices used, whether more than one device was used simultaneously, the primary device of use, exposure to video calls, and the duration of usage.

Mobile media habits were assessed by inquiring when children first began using devices, average daily usage time, autonomy in choosing games or videos, and whether they stopped using the device independently.

Parents' perspectives and practices regarding mobile device use were explored through questions about daily usage limits, content monitoring, the presence of non-Turkish content, attention to age-appropriate material, and criteria for selecting suitable content. Additional inquiries included parents' views on device use, contexts where usage was permitted (e.g., during meals, bedtime, or outings), reasons for allowing usage, challenges in convincing children to stop, and the perceived impact on parent-child relationships.

Finally, parents were asked whether they felt sufficiently informed about children's mobile media use, consulted pediatricians on the matter, or had specific age-related recommendations for device introduction.

Statistical analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 23.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics, including frequencies, means, medians, ranges (minimum–maximum), standard deviations, and percentages, were calculated. Categorical variables were compared using the chi-square test, while the Kolmogorov-Smirnov test was applied to assess the normality of numerical variables. For comparisons between two independent groups, the Mann-Whitney U test was used, and the Kruskal-Wallis test was employed for multiple group A Spearman correlation analysis was conducted to ascertain the relationship between the child's age and their daily screen time. Statistical significance was set at $p < 0.050$.

RESULTS

The questionnaire was completed by 404 parents after excluding 73 due to missing or incomplete data.

Demographics of participants

The mean age of the children was 13.53±7.64 months. The mean ages of mothers and fathers were 29.36±5.02 and 32.7±5.49 years, respectively. Among mothers, 41.8% had a university or higher education, compared to 42.6% of fathers. Regarding economic status, 61.4% of parents reported that their expenditure was equal to their income. The demographic characteristics were summarized in Table I which provides demographic information of the participants, including parental education levels, income status, and the presence of siblings. These variables were examined for associations with children's mobile media exposure but were not found to be significantly related.

Children's mobile media exposure

Overall 65.8% of children were exposed to mobile media. Mobile media exposure was 19.5% in children younger than 3 months, 39.1% in 3 to 5 months, 49.4% in 6-11-months, 65.5% in 12-17-months and 88.7% in 18-24 months. Figure 1 summarizes the mobile media exposure rates across different age groups. It visually illustrates the progressive increase in screen exposure as children grow older, with a particularly sharp rise observed after 12 months of age. This figure underscores the critical early period during which media exposure becomes more frequent.

Initial exposure to mobile media occurred within the first three months of life in 10.9% of children. Figure 2 presents the distribution of children's first exposure to mobile media by age. This figure highlights that a notable proportion of children are introduced to mobile devices within the first 6 months of life, raising concerns about early and potentially inappropriate screen exposure.

Of the children, 65.8% were exposed to mobile media (cell phones or tablets). No significant correlation was found between mobile media use and parental education levels, parental ages, or economic status (0.082, 0.123 and 0.221 respectevily). However, children with older siblings had a significantly higher rate of mobile media use compared to those without siblings (p=0.020), although no difference was observed in daily usage durations (p>0.062).

Table I: The participants' demographic characteristics

Children's age (month)*	14 (6.25-20.75)
Mothers' age (year)*	29 (26-32.75)
Farhers' age (year)*	32 (28-36)
Sibling†	
None	153 (37.9)
Yes	251 (62.1)
Mothers' education level†	
Less than high school degree	119 (29.5)
High school degree	116 (28.7)
College degree	146 (36.1)
More than college degree	23 (5.7)
Fathers' education level†	
Less than high school degree	120 (29.7)
High school degree	112 (27.7)
College degree	145 (35.9)
More than college degree	27 (6.7)
Monthly income†	
Expenditure more than income	96 (23.8)
Expenditure equal to income	248 (61.4)
Expenditure less than income	60 (14.9)

***:** *(median, IQR),* **†:** *n(%)*

Table II: Children's screen exposure times, by age

Age (Months)	Mobile media exposure time (minutes)*				
	None	<30 min	30-59 min	60-120 min	>120 min
<3	33 (80.5)	3 (7.3)	1 (2.4)	4 (9.8)	0 (0)
3-5	28 (60.9)	11 (23.9)	4 (8.7)	3 (6.5)	0 (0)
6-11	40 (50.6)	20 (25.3)	13 (16.5)	2 (2.5)	4 (5.1)
12-17	20 (23.0)	41 (47.1)	14 (16.1)	7 (8.0)	5 (5.7)
18-24	17 (11.3)	46 (30.5)	44 (29.1)	27 (17.9)	17 (11.3)

***:** *n(%)*

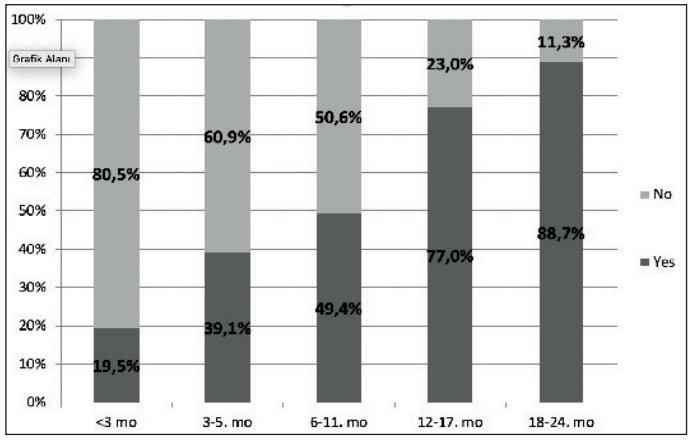

Figure 1: Mobile media usage rates of children by age groups.

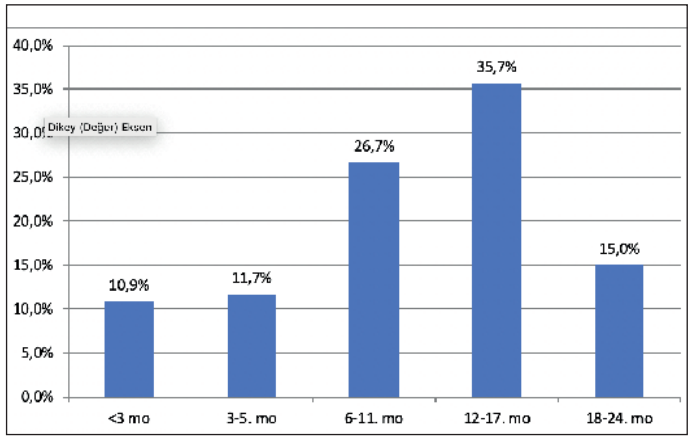

Figure 2: Distribution of children's first use of mobile media, by age.

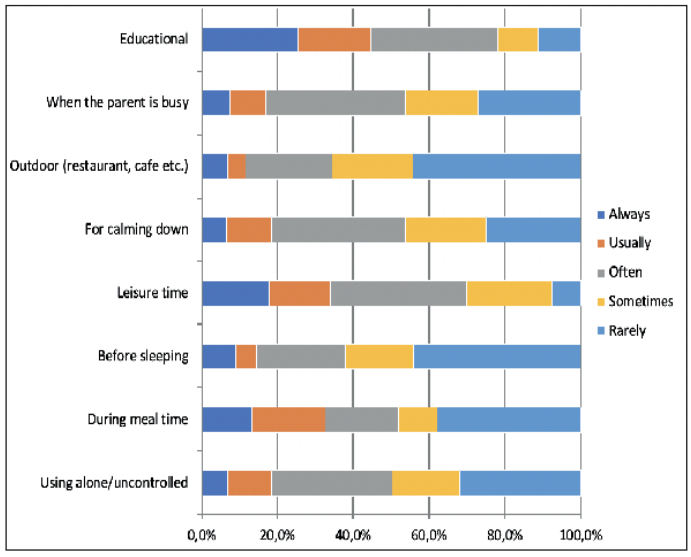

Figure 3: Parental permission patterns for children's mobile media usage.

Daily usage durations were reported as follows: 45.5% used it for less than 30 minutes, 28.6% for 31–60 minutes, 16.2% for 61–120 minutes, and 9.8% for more than two hours. Table II details children's mobile media exposure durations across different age groups. This table supports the finding that screen time generally increases with age, and it also shows that even in the youngest age group (<3 months), some children are already exposed to screens—demonstrating early media use trends. A significant positive correlation was found between the child's age and daily screen time ($p < 0.001$, $r = 0.494$).

Among children using mobile media, 40.1% wanted to choose their own content, while 45.7% of parents reported needing to convince their children to stop using devices.

Parental attitudes about mobile media

Among parents of children using mobile media, 65.6% reported setting time limits, although these limits did not significantly impact the duration of mobile media use ($p > 0.084$). The most common limits were under 30 minutes (60.1%), 30–60 minutes (27.7%), and over 120 minutes (1.2%). Parents allowed mobile media use primarily for educational purposes, entertainment, to occupy children while busy, or to calm them. Parents generally avoided permitting device use outdoors or before sleep. Figure 3 shows the contexts in which parents permit mobile media use, such as during meals, bedtime, or outings. The figure reveals that despite many parents reporting screen time restrictions, mobile devices are still commonly used in routine daily settings—pointing to a possible mismatch between parental intention and practice. Regarding co-viewing habits, 36.8% of parents reported "always" watching content with their child, 19.5% "frequently," 29.3% "sometimes," 8.6% "rarely," and 5.6% "never." Interestingly, 45.5% of parents noted an increase in mobile media exposure during pandemic-related social restrictions.

Parental beliefs about mobile media

Although 91.4% of parents believed mobile media use was harmful, 63.2% acknowledged its educational potential. Among these, 94.7% reported ensuring age-appropriate content, focusing on educational value (39.5%), entertainment (33.8%), non-violent material (12.8%), and calming properties (10.2%). Additionally, 57.1% of parents encouraged foreign language content, a preference significantly associated with maternal education level ($p < 0.001$). When asked about their knowledge of mobile media use in children, 54.5% of parents believed they were sufficiently informed. Children of parents who felt informed had significantly lower exposure to mobile media ($p = 0.010$). However, only 14.3% of parents reported receiving advice from a pediatrician, and no significant difference in exposure rates was observed based on receiving such advice ($p > 0.138$). Parental opinions on appropriate age for mobile media use varied: 6.7% believed it was appropriate before 6 months, 2.5% between 6–12 months, 21.5% between 12–24 months, 24.3% between 24–36 months, and 45% only after 36 months. Despite these beliefs, 74.8% of parents reported that mobile media reduced family interaction time, while only 5.2% believed it increased family bonding.

Video calls

Of the parents, 86.8% engaged in video calls with their children, and 78.7% reported that video calls captured their children's attention. Among these, 82.5% spent 15–30 minutes per session. Interestingly, 76.3% of parents who restricted mobile media use still engaged in video calls, although they did not perceive this as part of mobile media exposure.

DISCUSSION

The updated We Are Social 2021 report revealed a 6% increase in internet users in Türkiye, with 77.7% of the population using the internet and mobile connections reaching 90.8% of the total population as of January 2021 (24). Increased internet, social media, and device usage were observed across all categories. Among individuals aged 16–65, the average daily mobile internet usage was reported as four hours and 19 minutes (24). Our study identified alarmingly high rates of mobile media exposure in children under 24 months, with some exposed during their first months of life. This exposure steadily increased with age, reaching nearly 90% in children by 24 months. While this study did not examine factors such as parental media use, household device ownership, or environmental influences, it is plausible that these high rates reflect the pervasive use of mobile media in Turkish society. Compared to other studies in the literature, the frequencies observed in our study were strikingly higher, with nearly 10% of children exposed to mobile media for over two hours daily(18,19,25–27). These findings underscore the need for targeted and structured public health policies to mitigate early childhood mobile media exposure. Specifically,

national health authorities should implement standardized parental education programs as part of routine pediatric check-ups, focusing on evidence-based strategies to limit screen time, encourage alternative activities, and promote mindful media consumption. These programs should include practical tools such as mobile media exposure guidelines, parental workshops, and digital literacy training to equip caregivers with effective management techniques.

Studies report varied findings on the relationship between children's mobile media exposure and demographic characteristics (4,20,25,28). In our study, no significant relationship was observed between mobile media exposure and family monthly income, potentially due to the widespread availability of mobile devices across different socioeconomic levels. Similarly, no association was found between mobile media exposure and parental educational level. However, children of mothers with higher educational attainment were more likely to engage with foreign-language content.

Parental educational motivation, rule-setting practices, and strict monitoring have been shown to reduce mobile media exposure and positively influence children's academic, social, and physical development (9,23,29,30). In this study, children of parents who reported having sufficient knowledge about mobile media were exposed less frequently and for shorter durations. However, nearly half of the parents who permitted mobile media use did not monitor their children during exposure, and an equal proportion allowed children to choose their own content. Although over 90% of parents acknowledged the harmful effects of mobile media exposure and nearly two-thirds believed it reduced family time, this study reported the highest frequency of mobile media exposure among young children in the literature. These findings highlight the need to improve parental knowledge regarding the developmental and health-related consequences of mobile media exposure and promote effective behavioral strategies. Furthermore, the finding that only one in four parents had received guidance from a pediatrician emphasizes the necessity of increasing pediatricians' awareness and involvement, as they are often the first point of contact in the healthcare system for young children. Hence pediatricians should take a proactive role in media counseling, integrating discussions on mobile media exposure into well-child visits and emphasizing the developmental risks associated with excessive screen time. Standardized screening tools should be incorporated into pediatric practice to assess children's media exposure levels and guide tailored recommendations. In addition, national pediatric associations should advocate for age-specific digital media policies, setting clear recommendations on appropriate content, co-viewing practices, and screen time limits for infants and toddlers.

In line with previous studies, our findings indicate that parents primarily allow mobile media use for educational purposes, entertainment, and calming their children (31–33). Similar trends have been reported in various international studies, where parents often perceive mobile devices as a valuable educational tool, particularly for language learning and cognitive stimulation (34,35). However, research suggests that while some digital content may support learning, passive screen exposure without active parental engagement provides limited developmental benefits and may even hinder language and social skill acquisition (12). Additionally, the use of mobile media as a calming tool aligns with findings that parents frequently rely on screens to manage children's behavior and reduce distress, particularly in situations requiring quiet or distraction (36). However, studies have warned that this approach may lead to increased screen dependency and reduced self-regulation skills, as children become accustomed to using digital devices as a primary coping mechanism for emotional discomfort (7). Moreover, cross-cultural research indicates that socioeconomic and parental education levels play a role in shaping attitudes toward mobile media use, with higher-educated parents more likely to curate content and set usage limits (37). Given these findings, there is a need for parental guidance programs that emphasize structured and interactive media use, ensuring that screen exposure complements, rather than replaces, essential face-to-face interactions and self-regulation development. Future research should focus on longitudinal analyses to determine how parental motivations for mobile media use influence children's cognitive and socio-emotional outcomes over time.

Our findings align with previous research indicating that mobile media exposure is widespread among infants and toddlers, with usage increasing as children grow older. Similar to studies conducted in Türkiye and internationally, early and prolonged screen exposure has been associated with delayed language acquisition, largely due to reduced parent-child verbal interactions and limited conversational turn-taking (38,39). The observation that many children in our study autonomously selected content further supports concerns that passive engagement may replace interactive learning, which is crucial for vocabulary development. Additionally, our results reinforce prior evidence linking excessive screen use to socio-emotional challenges, including increased impulsivity, emotional dysregulation, and reduced attention span (7,40). Studies suggest that excessive screen time at a young age may contribute to difficulties in emotional self-regulation, potentially leading to heightened frustration and behavioral issues. Furthermore, the frequent use of mobile media during meals and before sleep, as observed in our study, is consistent with findings that such practices disrupt eating behaviors and impair sleep quality due to prolonged blue light exposure (6).

McClure et al. (40) reported that children under two years frequently participated in video chats, with parents perceiving this form of media as less harmful compared to other types. The study also highlighted that video calls were the most common medium parents used to maintain contact with family members. Emerging research suggests that interactive video chats can

support young children's social development by facilitating real-time communication, emotional connection, and language exposure-especially with non-resident family members. Unlike passive screen use, video calls offer opportunities for responsive interactions that may benefit cognitive and socio-emotional growth (40). Similarly, in our study, the majority of parents, including those who otherwise restricted mobile media exposure, engaged in video calls with their children. Given the positive effects of video calls on children's social interactions and the common perception that video chats do not constitute mobile media exposure, there may be a need to develop updated guidelines addressing this specific use. Future guidelines should differentiate between passive screen exposure and interactive digital engagement. Policies should provide age-appropriate recommendations on video calls, recognizing their potential social benefits while ensuring they do not contribute to excessive screen time.

This study has several limitations. First, the use of a self-developed questionnaire rather than a validated scale may limit the comparability of our findings with other standardized assessments. Second, we did not examine parents' own media use habits, which could play a significant role in shaping children's exposure and screen-related behaviors. Similarly, the presence and number of media devices in the household were not assessed, which may have influenced the accessibility and frequency of children's mobile media use. Third, although sibling presence was noted, we did not collect detailed data on the media use patterns of siblings, which might have provided further insights into family dynamics and modeling behaviors. Fourth, developmental assessments of the children were not conducted, limiting our ability to directly link screen exposure with developmental outcomes. Finally, as the study was conducted in a single tertiary center, the generalizability of the results to broader populations is constrained. Future studies should aim to incorporate multi-center designs, include detailed assessments of household media environments, and evaluate both parental and sibling media use in relation to child outcomes.

CONCLUSION

Exposure to mobile media is strikingly high among children aged 1–24 months, reaching nearly 90% by 24 months. Children of parents with greater awareness of mobile media risks were found to have lower exposure in both frequency and duration. Educational efforts should focus on increasing parental awareness about the developmental and health impacts of mobile media and encouraging effective monitoring practices. Considering the potential benefits of video calls for social interaction and parental perceptions, updated guidelines may be necessary. Future research using validated tools to explore parental behaviors and environmental factors will be critical in shaping policies that support the healthy development of young children.

Ethics committee approval

This study adhered to the principles of the Declaration of Helsinki and was approved by the Ethics Committee and Institutional Review Board of Ankara Bilkent City Hospital (E2-22-1197; 05/10/2022).

Contribution of the authors

Yiğit M: Planning methodology to reach the conclusions, Organizing, supervising the course of progress and taking the responsibility of the research/study, Taking responsibility in the writing of the whole or important parts of the study, Reviewing the article before submission scientifically besides spelling and grammar. **Güngör A:** Constructing the hypothesis or idea of research and/or article, Organizing, supervising the course of progress and taking the responsibility of the research/study, Taking responsibility in patient follow-up, collection of relevant biological materials, data management and reporting, execution of the experiments, Taking responsibility in necessary literature review for the study, Taking responsibility in the writing of the whole or important parts of the study. **Kalaycı F:** Constructing the hypothesis or idea of research and/or article, Planning methodology to reach the conclusions, Taking responsibility in necessary literature review for the study. **Şenel S:** Planning methodology to reach the conclusions, Reviewing the article before submission scientifically besides spelling and grammar.

Source of funding

The authors declare the study received no funding.

Conflict of interest

The authors declare that there is no conflict of interest.

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