# Electronic device usage among preschool children and its association with mental health status in Saudi Arabian kindergartens

Siham O. Al-Mehmadi, MD, SBPM, **Abdulrahman T. Halawani**, MBBS, SBPM, **Mrnan T. Sulaimani**, MD, SBPM, Tamim O. Al-Mehmadi, BSN.

## ABSTRACT

**الأهداف**: تقدير مدى انتشار استخدام الأجهزة الإلكترونية وارتباطه بحالة الصحة العقلية بين أطفال ما قبل المدرسة الذين تتراوح أعمارهم بين 3–6 سنوات.

**المنهجية**: أجريت دراسة مقطعية بين أطفال ما قبل المدرسة الذين تتراوح أعمارهم بين 3–6 سنوات في رياض الأطفال بمدينة مكة المكرمة في العام 2023–2024، باستخدام الاستبيان الإلكتروني. قمنا باستخدام النسخة العربية من استبيان نقاط القوة والصعوبات لتقييم الصحة النفسية.

**النتائج**: اشتملت الدراسة على 399 طفلا. وبلغ معدل انتشار استخدام الأجهزة الإلكترونية 91.5%. وتراوح عدد الساعات التي يقضيها الشخص في استخدام الأجهزة الإلكترونية من 0 إلى 12 ساعة/يوم، بمتوسط 3.1 ساعة/يوم. لقد وجدنا علاقة إيجابية معنوية بين عدد الساعات التي يقضيها الشخص في استخدام الأجهزة الإلكترونية والمشكلات العاطفية (r=0.200, p<0.001)، والمشاكل السلوكية (r=0.149, p=0.003)، وفرط النشاط (r=0.279, p<0.0011)، ومشاكل الأقران (r=0.104, p=0.038)، ومجموع درجات الصعوبة (r=0.263, p<0.001). لقد وجدنا أيضًا ارتباطًا سلبيًا كبيرًا بين عدد الساعات التي يقضيها في استخدام الأجهزة الإلكترونية والنتيجة الاجتماعية الإيجابية (r= –0.128, p=0.011)، وكان لدى معظم الأطفال المشمولين درجات ضمن فئة «قريب من المتوسط» عبر جميع المقاييس. من حالة الصحة العقلية.

**الخلاصة**: كان هناك انتشار مرتفع لاستخدام الأجهزة الإلكترونية بين الأطفال في مرحلة ما قبل المدرسة، وهو ما تجاوز الحد الزمني الموصى به. ولوحظ وجود علاقة ذات دلالة إحصائية بين استخدام الأجهزة الإلكترونية ونتائج الصحة العقلية. هناك حاجة إلى مزيد من الدراسات الطولية لفهم طبيعة هذا الارتباط وآثاره على نمو الطفل.

**Objectives:** To estimate the prevalence of electronic device usage and its association with mental health status among preschool children aged 3-6 years.

**Methods:** A cross-sectional study was conducted among preschool children aged 3-6 years in kindergartens in Makkah city in 2023-2024, using an electronic questionnaire. An Arabic version of the Strengths and Difficulties Questionnaire was used to assess mental health.

**Results:** We recruited a total of 399 children. The prevalence of electronic device usage was 91.5%. The number of hours spent using electronic devices ranged from 0 to 12 hour (h)/day, with a mean of 3.1 h/day. We found a significant positive correlation between the number of hours spent using electronic devices and emotional problems (r=0.200, $p<0.001$), conduct problems (r=0.149, $p=0.003$), hyperactivity (r=0.279, $p<0.001$), peer problems (r=0.104, $p=0.038$), and total difficulty scores (r=0.263, $p<0.001$). We also found a significant negative correlation between the number of hours spent using electronic devices and the prosocial score (r= -0.128, $p=0.011$), and most of the included children had scores within the "close to average" category across all scales of mental health status.

**Conclusion:** There was a high prevalence of electronic device usage among preschool children, which exceeded the recommended time limit. A significant correlation was observed between electronic device use and mental health scores. Further longitudinal studies are required to understand the nature of this association and its implications for child development.

**Keywords:** screen time, mental well-being, preschooler

*Address correspondence and reprint request to: Dr. Siham O. Al-Mehmadi, Makkah Healthcare Cluster, Makkah, Kingdom of Saudi Arabia. E-mail: s.o.mehmadi@gmail.com*
*ORCID ID: https://orcid.org/0009-0005-1037-8597*

Over the recent years, there has been a substantial rise in the utilization of electronic devices (EDs). The ownership of EDs and time spent using them are increasing among all age groups.[1,2] The use of EDs among children raises concerns regarding their safety and the effects on their mental health and well-being.[3,4] Guidelines from the American Academy of Pediatrics (AAP) and the World Health Organization (WHO) suggest limiting daily screen time to a maximum of one hour (h) for children who are 5 years old or under.[5,]

A comprehensive study in Germany tracking a large group of individuals from infancy to 17 years old found that mental health during childhood and teenage years can affect well-being in later life; the study observed that various mental health issues experienced during these early stages are linked to decreased life satisfaction and lower quality of life in adult years.[7] According to 2 systematic reviews, increased screen time may negatively influence sleep patterns, sleep quality, physical activity, weight, and psychological health.[8,9] Another systematic review, which focused on children and adolescents aged 2-18 years, suggests that there is some evidence, although not definitive, that increased usage of mobile phones and wireless devices might adversely affect their mental health.[10]

A previous study was conducted to estimate the prevalence of ED usage among primary school children in the eastern region of Saudi Arabia, which showed that 78.6% of children own EDs and 21.4% use them for more than 3 h a day during weekdays; this percentage rises to 47.8% during weekends.[11]

A thorough search of the relevant literature showed that no previous study has evaluated the association between ED usage and mental health locally using a validated tool. This study aimed i) to estimate the prevalence of ED usage among preschool children aged 3-6 years in Makkah city in 2023–2024; ii) estimate the prevalence of emotional, conduct, hyperactivity, prosocial, and peer problems; and iii) assess the association between ED usage and mental health status.

**Methods.** An analytical cross-sectional study was conducted among preschool children aged 3–6 years attending kindergartens (KG) in Makkah city. According to Ministry of Education statistics, the number of KG

children in Makkah city in 2023 was 19,000. Therefore, the sample size was calculated accordingly, and 377 children or more were needed with a 95% confidence interval (CI) and a 5% margin of error. This was calculated using Open Epi Info version 7.2.

Makkah city is divided into 5 educational districts (North, South, East, West, and Middle areas). One KG was randomly selected from each district, and all children were selected from each school.

This study included Saudi and non-Saudi KG children of both genders aged 3-6 years, living in Makkah city. Children who had been diagnosed with any neurodevelopmental disorders such as attention deficit/hyperactivity disorder (ADHD), autism, learning disabilities, intellectual disabilities, conduct disorders, cerebral palsy, and sensory impairments; as well as those with mental health conditions like depression, anxiety, bipolar disorder, and schizophrenia, were excluded from the study.

Children were recruited between October and December 2023. After randomly selecting KG schools from each educational area, the school administrator was contacted to provide the contact numbers of the children's parents. Then electronic questionnaire was sent to the parents through WhatsApp.

The sociodemographic characteristics examined in the study were as follows: age of the child and the parents; gender of the child; nationality of the child; KG level; marital status of the parents; family income (FI) per month; whether the child was living with both parents, one of them, or none of them; any chronic disease that needed regular medication use; and screening questions to verify if the participant had any of the exclusion criteria. Three questions were used to assess ED usage: whether the child used an ED, whether the child owned a device, and how many hours per day the child used the device.

The Strengths and Difficulties Questionnaire (SDQ) is a reliable screening tool for mental health disorderswith a validated Arabic version.[12,13] The SDQ consisted of 25 items. It assesses mental health using five problem scales: emotional problems, conduct problems, hyperactivity, peer relationship problems, and prosocial behavior.[14] Each problem scale has 5 items with three response options (0="not true" to 2="certainly true"). According to the cutoffs, participants are categorized into groups based on the sum scores (close to average, slightly raised, high, and very high), except for the prosocial score, which is categorized as close to average, slightly lowered, low, or very low.[14] The total difficulty score ranges from 0 to 40 and can be estimated by summing all but the prosocial score.[14]

This study was approved by the Institutional Review Board of the Ministry of Health of Makkah city. Written informed consent was obtained from the parents or guardians before participation in the study.

*Statistical analysis.* The SPSS version 21 (IBM Corp., Armonk, NY, USA) was used for data analysis, and *p* values of <0.05 were considered statistically significant. Descriptive statistics were presented in the form of mean ± SD for numerical variables and as frequencies and percentages for categorical variables. All data were normally distributed, and parametric tests were used. Pearson's correlation coefficient was used to measure the association between ED use (h/day) and emotional problems, conduct problems, prosocial behavior, hyperactivity, peer problems, and total difficulties scores. Univariate analysis (t-test and analysis of variance) was used to assess the association between mental health status scores and covariates. Multivariate linear regression was used to determine the predictors of mental health status.

**Results.** *Sociodemographic characteristics of the children, parents, and ED usage.* A total of 399 children were recruited. Girls comprised 51.4% of the sample. A total of 93.5% of children were Saudi. Approximately 80.2% of the children were studying at KG3. Regarding FI in Saudi Riyal (SR), approximately 39.3% of families had an FI ranging from 5000 SR to <10,000 SR. Approximately 90.7% of children lived with both parents and 91.5% of the parents were married. Only 2% of the children were diagnosed with a chronic disease requiring regular medication (Table 1).

The children's ages ranged from 3–6 years old with a mean of 5.15 ± 0.6 years. The fathers' ages ranged from 23-90 years old with a mean of 40.3 ± 7.7 years. The mothers' ages ranged from 22-49 years old with a mean of 34.6 ± 5.55 years (Table 2). Regarding ED usage, approximately 91.5% of participants were confirmed to have used them. However, approximately 42.4% of children had their own ED (Table 1). The number of hours spent using an ED ranged from 0-12 h/day with a mean of 3.1 h ± 2.3 h; approximately 73.9% of children were using EDs for >1 h (Tables 1&2).

In terms of emotional problems, conduct problems, hyperactivity, peer problems, prosocial and total difficulty scores, the majority of the children fell into the "close to average" category (57.4%, 75.7%, 83.7%, 61.7%, 91.7%, and 73.4%, respectively) (Table 3).

*Factors associated with ED use.* A significant positive correlation was found between the number of hours spent using EDs and emotional problems (r=0.200, *p*<0.001), conduct problems (r=0.149, *p*=0.003),

Table 1 - Sociodemographic characteristics of the children (categorical variables).

| Characteristics | n | % |
|---|---|---|
| *Gender* | | |
| Girls | 205 | 51.4 |
| Boys | 194 | 48.6 |
| *Nationality* | | |
| Saudi | 373 | 93.5 |
| Non-Saudi | 26 | 6.5 |
| *Kindergarten (KG) level* | | |
| KG 1 | 23 | 5.8 |
| KG 2 | 56 | 14.0 |
| KG 3 | 320 | 80.2 |
| *Family income in Saudi Riyals* | | |
| <5000 | 112 | 28.1 |
| 5000 to <10,000 | 157 | 39.3 |
| 10,000 to <15,000 | 92 | 23.1 |
| ≥15,000 | 38 | 9.5 |
| *Living status* | | |
| Both parents | 362 | 90.7 |
| One of them | 35 | 8.8 |
| Relatives | 2 | 0.5 |
| *Marital status of parents* | | |
| Divorced | 30 | 7.5 |
| Married | 365 | 91.5 |
| Widowed | 4 | 1.0 |
| *Chronic disease* | | |
| No | 391 | 98.0 |
| Yes | 8 | 2.0 |
| *Electronic device (ED) usage* | | |
| No | 34 | 8.5 |
| Yes | 365 | 91.5 |
| *Owning ED* | | |
| No | 230 | 57.6 |
| Yes | 169 | 42.4 |
| *Number of hours using an ED* | | |
| ≤1 hour | 104 | 26.1 |
| >1 hour | 295 | 73.9 |

Table 2 - Sociodemographic characteristics of the children (continuous variables).

| Variables | Minimum | Maximum | Mean | SD |
|---|---|---|---|---|
| Father's age in years | 23.0 | 90.0 | 40.3 | 7.7 |
| Mother's age in years | 22.0 | 49.0 | 34.6 | 5.55 |
| Number of hours using an ED | 0 | 12 | 3.1 | 2.3 |
| Child age in years | 3.0 | 6.0 | 5.15 | 0.6 |
| ED: electronic device, SD: standard deviation | | | | |

hyperactivity (r=0.279, *p*<0.001), peer problems (r=0.104, *p*=0.038), and total difficulty scores (r=0.263, *p*<0.001). In addition, a significant negative correlation was found between the number of hours spent using EDs and prosocial scores (r=-0.128, *p*=0.011) (Table 4).

**Table 3 -** Strengths and Difficulties Questionnaire scores categorization among preschool children in Makkah city.

| Scores | Close to average n (%) | Slightly raised n (%) | High n (%) | Very high n (%) |
|---|---|---|---|---|
| Emotional problem score | 229 (57.4) | 52 (13.0) | 43 (10.8) | 75 (18.8) |
| Conduct problem score | 302 (75.7) | 42 (10.5) | 31 (7.8) | 24 (6.0) |
| Hyperactivity problem score | 334 (83.7) | 30 (7.5) | 17 (4.3) | 18 (4.5) |
| Peer problem score | 246 (61.7) | 67 (16.8) | 47 (11.8) | 39 (9.8) |
| Prosocial score | 366 (91.7) | 23 (5.8) * | 6 (1.5) ** | 4 (1.0) *** |
| Total difficulty score | 293 (73.4) | 41 (10.3) | 31 (7.8) | 34 (8.5) |
| *Slightly lowered, **Low; ***Very low | | | | |

**Table 4 -** Correlations between number of hours spent using EDs and SDQ scales among preschool children in Makkah city.

| Scores | Number of hours spent using an ED | |
|---|---|---|
| | Correlation coefficient (r) | P-value |
| Emotional problems score | 0.200 | <0.001 |
| Conduct problems score | 0.149 | 0.003 |
| Hyperactivity score | 0.279 | <0.001 |
| Peer problems score | 0.104 | 0.038 |
| Prosocial score | -0.128 | 0.011 |
| Total difficulties score | 0.263 | <0.001 |
| ED: electronic device | | |

There was no statistically significant difference between girls and boys among all SDQ scores except for the prosocial score (p=0.006, 95% CI -0.65 to -0.11) (Table 5). In addition, there was no statistically significant difference between Saudi and non-Saudi children, who have chronic disease or not, those who use an ED, and those who have their own devices in all SDQ scores. There was a statistically significant difference between children who used EDs for >1 h and those who used them for ≤1 h in emotional score (p=0.04, 95% CI -0.98 to -0.02), hyperactivity score (p=0.003, 95% CI -1.14 to -0.24), prosocial score (p=0.002, 95% CI 0.18–0.74), and total difficulty score (p=0.015, 95% CI -2.78 to -0.30). In addition, there were no statistically significant differences among KG levels, FI categories, marital status of the parents (married, divorced, widowed), and whether the child lived with both parents, one of them, or relatives among all SDQ scores (Table 5).

Multivariate linear regression was carried out to assess the association between the number of hours spent in the ED and prosocial scores with adjustment for gender, which was previously significant, showing that with every increase in the number of hours spent using EDs, prosocial scores decreased by 0.075 (p=0.011, 95% CI -0.134 to -0.017); there was no significant association with gender in the model (Table 6).

**Discussion.** In this study, the prevalence of ED usage was 91.5%, according to a previous study carried out in Malaysia among preschool children, it was found that approximately 95.9% of the children use ED.[15] Another large population-based study conducted in Canada among children aged 5 years and younger found that more than 95% of children used ED.[16] However, the screen time mean was approximately 1.5 h/day, which is close to the recommended screen time.

This study found that the number of hours spent by children using an ED ranged from 0–12 h/day with a mean of 3.06 h/day, therefore surpassing the screen time limits recommended by the WHO and AAP.[5,6] A systematic review and meta-analysis found that only 35.6% of the children aged ≤5 years met the recommended screen time limits.[4] In addition, there was a difference between children who used the ED for >1 h and those who used the ED for ≤1 h in emotional, hyperactivity, prosocial, and total difficulty scores, which highlights and supports the importance of screen time recommendations. In addition, various studies support the finding that a longer screen time is associated with a higher risk of mental health disorders, including a recent systematic review of reviews including children and adolescents aged 17 years old and younger which found that a longer screen is associated with higher risk of depression, anxiety, behavior problems, and lower mental wellbeing.[8]

This study found a weak relationship between the number of hours spent using EDs and mental health status, consistent with the results of 2 systematic reviews that concluded that using an ED and screen time has a minimal effect on mental health.[10,17] This could be explained by the fact that mental health can be affected by several factors such as genetic factors, socioeconomic status, and chronic diseases, which cannot be controlled simultaneously, and their effects may differ at the individual level.[18-21] Some of these factors were included in this study; however, none of the tested factors achieved significance.

In this study, gender differences were noted in prosocial scores, with girls scoring higher than boys.

**Table 5 -** Factors associated with Strengths and Difficulties Questionnaire scores among preschool children in Makkah city.

| Variables | Emotional problems score: mean (SD) | Conduct problems score: mean (SD) | Hyperactivity score: mean (SD) | Peer problems score: mean (SD) | Prosocial score: mean (SD) | Total difficulties score: mean (SD) |
|---|---|---|---|---|---|---|
| *Gender* | | | | | | |
| Boys | 2.5 (2.1) | 2.5 (1.7) | 3.3 (2.1) | 2.35 (1.5) | 8.4 (1.5) | 10.7 (5.3) |
| Girls | 2.6 (2.2) | 2.4 (1.85) | 3.1 (2.2) | 2.3 (1.5) | 8.8 (1.3) | 10.4 (5.8) |
| *P*-value | 0.712 | 0.709 | 0.343 | 0.547 | 0.006 | 0.607 |
| *Child nationality* | | | | | | |
| Saudi | 2.8 (2.0) | 2.6 (1.85) | 3.3 (2.45) | 2.2 (1.6) | 8.9 (0.9) | 10.9 (5.9) |
| Non- Saudi | 2.5 (2.15) | 2.5 (1.8) | 3.2 (2.2) | 2.3 (1.5) | 8.6 (1.4) | 10.5 (5.5) |
| *P*-value | 0.484 | 0.753 | 0.911 | 0.689 | 0.058 | 0.761 |
| *Chronic disease* | | | | | | |
| Yes | 1.9 (1.45) | 2.6 (2.1) | 3.0 (1.6) | 2.25 (1.3) | 8.4 (1.5) | 9.75 (4.65) |
| No | 2.6 (2.15) | 2.5 (1.8) | 3.2 (2.2) | 2.3 (1.5) | 8.6 (1.4) | 10.6 (5.6) |
| *P*-value | 0.361 | 0.804 | 0.771 | 0.913 | 0.655 | 0.676 |
| *ED usage* | | | | | | |
| Yes | 2.6 (2.15) | 2.5 (1.8) | 3.2 (2.15) | 2.3 (1.5) | 8.6 (1.4) | 10.55 (5.5) |
| No | 2.1 (2.0) | 2.3 (1.6) | 3.7 (2.5) | 2.5 (1.5) | 8.55 (1.6) | 10.6 (5.85) |
| *P*-value | 0.239 | 0.611 | 0.207 | 0.445 | 0.886 | 0.927 |
| *Owning an ED* | | | | | | |
| Yes | 2.5 (2.1) | 2.4 (1.9) | 3.1 (2.3) | 2.3 (1.7) | 8.6 (1.4) | 10.35 (5.85) |
| No | 2.6 (2.2) | 2.5 (1.6) | 3.3 (2.1) | 2.3 (1.4) | 8.6 (1.4) | 10.7 (5.3) |
| *P*-value | 0.892 | 0.448 | 0.468 | 0.842 | 0.824 | 0.520 |
| *Number of hours using an ED* | | | | | | |
| ≤1 h | 2.2 (2.0) | 2.3 (1.7) | 2.7 (1.9) | 2.3 (1.4) | 8.9 (1.2) | 9.4 (5.2) |
| >1 h | 2.7 (2.2) | 2.5 (1.8) | 3.4 (2.25) | 2.3 (1.6) | 8.5 (1.4) | 11.0 (5.6) |
| *P*-value | 0.041 | 0.156 | 0.003 | 0.706 | 0.002 | 0.015 |
| *KG level* | | | | | | |
| KG 1 | 2.9 (2.1) | 2.95 (2.2) | 3.65 (2.85) | 2.5 (1.6) | 8.3 (1.5) | 12.0 (6.6) |
| KG 2 | 2.5 (2.1) | 2.9 (2.1) | 3.2 (2.2) | 2.35 (1.7) | 8.55 (1.45) | 10.9 (6.3) |
| KG 3 | 2.5 (2.1) | 2.4 (1.6) | 3.2 (2.1) | 2.3 (1.5) | 8.6 (1.4) | 10.4 (5.3) |
| *P*-value | 0.778 | 0.123 | 0.625 | 0.748 | 0.560 | 0.458 |
| *Family income in SR* | | | | | | |
| <5000 | 2.75 (2.2) | 2.4 (1.8) | 3.3 (2.1) | 2.45 (1.5) | 8.8 (1.4) | 10.9 (5.9) |
| 5000 to <10,000 | 2.6 (2.2) | 2.45 (1.7) | 3.2 (2.05) | 2.3 (1.5) | 8.5 (1.4) | 10.6 (5.5) |
| 10,000 to <15,000 | 2.4 (2.0) | 2.6 (1.8) | 3.15 (2.5) | 2.1 (1.6) | 8.35 (1.3) | 10.3 (5.6) |
| ≥15000 | 2.3 (1.8) | 2.5 (1.7) | 2.9 (2.2) | 2.4 (1.5) | 8.7 (1.3) | 10.15 (4.7) |
| *P*-value | 0.642 | 0.858 | 0.793 | 0.503 | 0.079 | 0.835 |
| *Child lives with* | | | | | | |
| Both parents | 2.6 (2.2) | 2.5 (1.75) | 3.25 (2.2) | 2.3 (1.5) | 8.6 (1.4) | 10.6 (5.6) |
| One of them | 2.3 (1.8) | 2.25 (1.9) | 2.9 (2.1) | 2.3 (1.55) | 8.85 (1.4) | 9.85 (4.9) |
| Relatives | 4.0 (2.8) | 3.0 (2.8) | 2.5 (0.70) | 4.0 (0.0) | 9.5 (0.7) | 13.5 (6.4) |
| *P*-value | 0.501 | 0.696 | 0.650 | 0.288 | 0.311 | 0.562 |
| *Marital status* | | | | | | |
| Married | 2.6 (2.1) | 2.5 (1.7) | 3.2 (2.2) | 2.3 (1.5) | 8.6 (1.4) | 10.6 (5.5) |
| Divorced | 2.5 (2.3) | 2.4 (2.1) | 3.3 (2.2) | 2.4 (1.7) | 8.8 (1.5) | 10.6 (5.9) |
| Widowed | 3.0 (2.2) | 2.0 (2.4) | 1.5 (1.0) | 3.25 (0.95) | 9.75 (0.5) | 9.75 (5.7) |
| *P*-value | 0.893 | 0.842 | 0.285 | 0.410 | 0.160 | 0.958 |

ED: electronic device, h: hour, SD: standard deviation, KG: kindergarten

Multiple studies have shown that gender differences can be present in normal prosocial behavior, with a greater development in girls, especially when it is associated with empathy and compassion.[22,23]

In this study, we could not detect a significant association between FI and mental health status, contrary to the findings of previous studies that concluded that a low FI was associated with higher risk of mental health disorders in children.[19,21]

Children who suffer from chronic medical illness are at higher risk of mental health disorders.[20] This study did not find significant differences between children with and without chronic disease. This difference can be explained by the fact that we did not know the exact

**Table 6 -** Multiple linear regression, association between number of hours and prosocial score with control for gender.

| Model | | Unstandardized coefficients | Sig. | 95.0% Confidence interval for B | | Collinearity statistics | |
|---|---|---|---|---|---|---|---|
| | | B | | Lower bound | Upper bound | Tolerance | VIF |
| 1 | (Constant) | 8.455 | 0.000 | 7.99 | 8.92 | | |
| | Gender | 0.243 | 0.077 | -0.027 | 0.513 | 1.000 | 1.000 |
| | Number of hours using an ED | -0.075 | 0.011 | -0.13 | -0.02 | 1.000 | 1.000 |
| ED: electronic device, Sig.: significance, VIF: variance inflation factor | | | | | | | |

duration and severity of the condition of children in the chronic disease group. In addition, they represented only 2% of the children included in this study.

We could not detect a significant association between marital status, family structure, and mental health status of the children. However, multiple studies focusing on the effect of marital status of the parents on children's mental health concluded that the mental health status of the children was significantly affected by the marital status of the parents and the stability of the family.[24,25] This could be explained by the fact that the majority of the participants lived with both parents (almost 90%); therefore, if there was a difference, it would be too small to be determined.

The strengths of this study include the adequate sample size and the use of a reliable and validated tool for data collection. The SDQ serves as both a screening tool and a measure of treatment outcomes and is widely utilized in various countries for both research and clinical applications. In addition, several covariates were explored in this study.

*Study limitations.* First, the study was cross-sectional; therefore, a causal effect could not be proven. Second, the number of hours spent using EDs may differ from weekdays to weekends and was subjectively reported by parents, which may provide inaccurate information that also applies to mental health assessments.

In conclusion, our study showed a high prevalence of ED use among preschool children and a screen time exceeding the recommended limits. A significant correlation was observed between ED usage and mental health in this age group has been found. Further longitudinal studies are required to understand the nature of this association and its implications for child development. Many EDs can record daily use reports that can provide more accurate information on screen time. Additionally, regarding mental health, using a combined assessment (parent and teacher) may provide more accurate information.

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