AN INVESTIGATION OF THE RELATIONSHIP BETWEEN 36-72 MONTHLY CHILDREN'S SCREEN TIME AND THEIR BEHAVIORAL PROBLEMS AND EMOTION REGULATION SKILLS: A CASE STUDY IN TURKEY

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Abstract

The amount of time young children spend in front of screens is on the rise and the relationship between the children's screen time and their social/emotional development is becoming a widely discussed issue. This research sought to determine the relationship between passive and active screen time of children in early childhood and their social competence, behavioral problems and emotion regulation skills. The sample of the study consisted of 36-72 month-old 504 children living in a city in Turkey. The results revealed that the active and passive screen time of children was positively associated with behavioral problems, and negatively associated with their social competence and emotion regulation skills. The study also indicated that children's screen time exceeded the time recommended by the American Academy of Pediatrics (APA). The results also unveil that boys spend more time on screens than girls. The study will be beneficial to child caregivers in ever increasing screen-integrated lifestyles.

Keywords: Preschool children, passive screen time, active screen time, social competence, emotion regulation.

INTRODUCTION

Excessive exposure to media technologies has a significant place in the lives of both adults and young children. The media's effects on young children may be greater than adults (Güngör, 2020). Given both our observations of the environment we live in and the findings in some reported research in the existing literature (Durmuş & Övür, 2021; Kabali et al., 2015; Orde & Durner; 2016), children in early childhood interact with screen-integrated devices at an increasing rate. According to the OFCOM's report (2021), children mostly engage in TV broadcasts and watch videos. It is also stated that the majority of 3 to 7 year-old children watch videos with variety of content than television broadcasts, and almost all of them interact with one or more video sharing sites. According to the study conducted by Yalçın et al. (2021) on 1245 children between 2 to 5 years of age, 25% of them were found to play video games at home, 54.5% of their parents did not know the names of the video games they were playing. Akın (2019) suggested that preschool children mostly prefer watching television in the range of 2 to 3 hours daily. Recently, in addition to television, mobile smartphones and tablet PCs have increased children's screen exposure time dramatically. Sweetser et al., (2012) define two categories of children's screen time as passive and active screen time. Passive screen time (PST) refers to screen time that requires little or no interaction with the user, as in the case of watching television. During PST, content continues to play without user input until the screen is turned off (Hu et al., 2020; Sweetser et al., 2012). On the other hand, active screen time (AST) refers to intentional and cognitive engagement with a screen-based device. In other words, the user becomes interactive and provides various types of input to a screen integrated device based on feedback received from the device like a computer, an internet-connected device like a smart mobile phone, a tablet, a game platform, and etc.

(Hu et al., 2020; Sweetser et al., 2012). During AST, one can be seen incorporating physical movement or active participation while using electronic devices. For example, a child can be considered in AST when touching the screen, talking to a microphone of the device or showing physical movement like moving hands or legs to react the commands coming from the device and etc. There are also other studies in the literature that categorize this distinction as interactive and non-interactive screen times (Anderson & Hanson, 2009; Choi & Kirkorian, 2016) or traditional media and interactive media (Chassiakos et al., 2016). Sweetser et al., (2012) remark that AST and PST distinction provides a better understanding of the related positive and negative effects on young children.

The proposed study examines the effects of AST and PST of 36–72-month-old children on their social/emotional development. This early period of life offers remarkable growth in cognitive, social, and emotional domains. The experiences and relationships are formed during this time. This period serves as the foundation for later development and play a critical role in shaping the child's personality. Some of the social and emotional development that can be seen in the children during this early period of life are as follow: Play becomes more interactive and cooperative during this period. Children start engaging in parallel play and gets into more complex social play. They interact and collaborate with peers. Social skills develop and children start to learn about sharing, taking turns, and cooperating with others. These skills are essential for forming positive relationships and functioning in social groups. During this period, children also learn to manage their emotions. They begin to express their feelings in more effective ways. They may also experience new fears and anxieties.

The current study also aims to understand whether children's screen time (AST and PST) significantly differs by age, gender, sibling status, and parental education level.

The following subheadings present the findings and results found by the related studies in the available literature. Please note that subheadings are aligned with the general variables considered the current study.

Children's demographics and screen time

With their quick and easy access, mass media tools such as television and internet-enabled devices are frequently used by preschool children in their daily lives. However, spending too much time on screens may lead to an addiction. According to Yiğit and Günüç (2020), 44% of children are in the risk group for digital addiction and 15.1% of them are already digital game addicts. However, APA (2016) offers no screen time (except for video chatting) for children younger than 18 months. They also recommend that 2 to 5 years old children should get maximum of an hour of screen time per day, and quality content should be offered to children during this period. Given the relevant literature, it can be said that children's screen time exceeds the screen time limit set by the APA (2016) (Akın, 2019; Hu et al., 2020; Işın, 2019; Konca, 2021; Merdin, 2017).

Some part of the existing literature reports that boys spend more time in front of a screen than girls whereas some studies have found no correlation between gender and children's screen time (Hu et al., 2020; Tun, 2021). Children's screen time also increases as they get older. Children engage with the screen at an early age, and the time spent in front of screens increases as they grow (Olgun & Tuğrul, 2019). The literature also provides findings that children's screen time differs by the education levels of parents and the number of siblings. According to Yiğit and Günüç (2020), the parents' interest to the child and the population per household influence children's screen time. Hu et al. (2020) argue that the PST of preschool children differs by number of siblings they have. Children without siblings have more PST than children with siblings (Hu et al., 2020). Mutlu (2019), on the other hand, claims that younger children with siblings spend more time watching television. Eslami Shahrbabaki et al. (2020) reported that children's screen time was significantly associated with the gender of the child and the education level of the mother.

PST and social/emotional development of children

Social development is related to the acquisition of skills that enable a person to interact with others. Social development includes interpersonal relationships, attitudes and behavioral skills (VandenBos, 2007). Social competence is a concept that includes emotional transitions on social interactions and relationships. Emotional competence supports social competence. Socially competent children express their feelings in an appropriate way. Children's ability to regulate their emotions appropriately and those who are aware of the causes of their emotions also have social competence skills (Denham, 2006; Hay et al., 2004; Ogelman, et al., 2021; McDowell & Parke, 2005).

There are studies in the literature indicating that there is a relationship between young children's PST and their social/emotional development and behavioral problems (Akçay & Özcebe, 2012; Cliff et al., 2018; Demir & Yıldırım Şişman, 2021; Eslami Shahrbabaki, et al., 2020; Hu et al., 2020; Manganello & Taylor, 2009; Parkes, et al., 2013; Skalická et al., 2019; Swing, et al., 2010; Zimmerman, et al., 2005). The study by Hu et al., (2020) indicated that the PST of young children was negatively associated with their social skills. Additionally, no significant relationship was found between children's PST and their behavioral problems. Eslami Shahrbabaki, et al., (2020) reported that time spent viewing television clearly affects the behavioral disorders and aggression dimensions. Cliff et al. (2018) posited that when children ages 4-6 reduced their television viewing time by an average of 9 minutes per day, a significant increase was observed in children's self-regulation skills. Parkes, et al., (2013) argued that watching TV for 3 hours or more daily in the last two years increases conduct problems for children between the ages 5 and 7. In their longitudinal study, Zimmerman et al., (2005) detected a correlation between the duration of TV-watching and later bullying behavior in children. In a similar vein, Manganello and Taylor (2009) concluded that three-year-old children exposed to TV more are at increased risk for exhibiting aggressive behavior.

On the other hand, there are also other contradicting studies indicating that there is a positive or no significant relationship (Güral & Önder 2015) between children's PST and their social skills (Jackson, 2018; Omrak, 2019). Examining the impact of duration of watching TV on social skills of young children, Güral and Önder (2015) expressed that the social skills of children who spend more time watching TV are more than those who spend less time watching TV. In a study conducted by Omrak (2019), no significant relationship was detected between young children's TV time and their emotion regulation skills.

AST and social/emotional development of children

Active screens with access to the Internet improve children's social interaction, nurture relationship-building skills; increase communication, imagination, curiosity, creativity, aspirations; and encourage team play, cooperation, and rise social status (De Decker et al., 2012; Hu et al., 2020; Wong, et al., 2015). There is also abundant evidence in the literature indicating a relationship between active screen use such as tablets and smartphones in early childhood and emotion regulation and negative social behaviors. Cerniglia, et al., (2021) found a negative relationship between the use of digital devices such as smartphones and tablets at 4 years of age and children's emotion regulation skills. Eslami Shahrbabaki, et al., (2020) reported that playing with a tablet device more than two hours per day was significantly related to anti-social behaviors, while using a smartphone for more than 2 hours a day was significantly related to anxiety, anti-social behaviors, and behavioral problems. Omrok (2019) claimed that the score of emotion regulation and secure attachment observed decrease when the time of using technological devices increase. Gülay et al., (2018) pointed out that the duration of watching television during the week, the total duration of use of portable computers, and all mobile technologies significantly predicted the social influence level of children among their peers. They also concluded that the duration of children's use of smartphones during the week significantly predicted the social preference levels of children among their peers. There are contradicting studies indicating a negative relationship between emotion regulation and technology use (Elhai et al., 2018; Işık Karaşahin, 2021).

The Aim and the Contribution of the Current Study

The above analysis of the research on screen time of preschool children, we can conclude that only a few studies have examined the relationship between children's screen time and social/emotional skills. This is one of the main goals of the current study is to contribute to fulfill this research gap. The study provides robust data and evidence-based guidance on the selection and use of the screen time by the experts working in the field (teachers, psychological counselors, and guidance specialists, etc.) and parents. Also note that some reported findings in the literature is contradictory. For example, some research findings contradict with each other on the gender difference on screen times. Somewhat it is an expected contradiction as the studies withdraw results from case-based selected data. Therefore, another contribution of the current study is to provide additional results to the related literature based on a Turkish case data. This may help the literature to expand and may reduce the contradiction level of results on key variables studied.

Motivated by these goals, this research was carried out to determine the relationship between PST and AST of children in early childhood period and their social competence, behavioral problems (aggression, anxiety levels), and emotion regulation skills (emotion regulation, variability/negativity). The contribution of the current research is generated by the following research questions:

- Is there a difference in children's AST or PST based on age, gender, sibling status and parental education level?
- Is there a relationship between children's screen time (AST or PST) and their social competence skills, behavioral problems (anger-aggression and anxiety-introversion), and emotion regulation skills (emotion regulation and variability/negativity)?

METHOD

Research Model

The relational survey model was employed in the study in which AST and PST of preschool children between 36 and 72 months, along with the relationship between social behavior problems and emotion regulation skills among the children, were investigated. A relational survey model is conducted to identify the relationship between two or more variables (McMillan & Schumacher, 2014).

Study Group

The study group consisted of children aged between 36 and 72 months who attend pre-school institutions in the city of Denizli, Turkey. Demographic data of the study group are provided in Table 1.

Table 1. Demographics of the study group.

Demographic variable		*n*	*%*
Gender	Female	251	49.8
	Male	253	50.2
	Total	504	100.0
Age (Month)	36-48	71	14.1
	48-60	153	30.4
	60- 72	280	55.6
	Total	504	100.0
Education Level of Mother	Primary / Secondary School	83	16.5
	High school	136	27.0
	University	285	56.5
	Total	504	100.0

Table 1 (Continued). Demographics of the study group.

Demographic variable		*n*	*%*
Education Level of Father	Primary / Secondary School	113	22.4
	High school	130	25.8
	University	261	51.8
	Total	504	100.0
Sibling Status	None	141	28.0
	Yes	363	72.0
	Total	504	100.0

Data Collection Tools
Personal Information Form, the Social Competency and Behavior Evaluation-30 Scale (SCBE-30), Emotion Regulation Scale and Screen time Questionnaire were used in the research.

Personal Information form was specifically developed by the researcher to determine the key demographic data of the participants such as month group, gender, parental education level, etc.

The Social Competency and Behavior Evaluation-30 (SCBE-30) Scale
The scale developed by La Freniere and Dumas (1996) was adapted into Turkish by Çorapçı et.al. (2010). It is used to measure emotional and behavioural problems in preschool children and to identify children at risk. The SCBE-30 assesses symptoms related to emotional and behavioural problem like anger-aggression and anxiety-introversion. The children may exhibit these symptoms during the preschool period. The scale has also the capacity to quantify social skills expected to be developed in this period. SCBE-30 has three subscales (Social Competence, Anger-Aggression, and Anxiety-Introversion) with 10-items each. Items 2, 6, 11, 13, 15, 17, 20, 22, 27 and 30 in the Social Competence (SC) subscale measure the positive characteristics of children such as cooperation with their peers and seeking solutions to conflicts. Some of the items in SC subscale are given as follow: "Comforts or helps a child in distress"; "Seeks solutions to conflicts"; and "Works and collaborates with other children in group activities". Items 3, 4, 5, 10, 16, 18, 24, 25, 28, and 29 in the Anger-Aggression (AA) subscale measure externalizing disorder symptoms such as defying adults' requests and maladaptive and aggressive behavior in peer relationships. Items in AA subscale are exemplified as follow: "He gets angry when his activity is interrupted"; "He is grumpy, quick to anger and get angry"; and "Hits, bites or kicks other children". Items 1, 7, 8, 9, 12, 14, 19, 21, 23, and 26 in the Anxiety-Introversion (AI) subscale evaluate children's sad and depressed moods and symptoms of internalizing disorders such as shyness-sensitivity in the group. Some of example items are given as follow: "S(he) is shy; avoids new environments and situations"; "Separated from the group, s(he) remains on his(her) own"; and "S(he) is sad, unhappy, or depressed".

The scale has no reverse scored items in the 6-item Likert-type. The high scores obtained from the scale indicate high anger, high social competence, and high introversion whereas the low scores obtained from the scale indicate low anger, low social competence, and low introversion (Çorapçı et al., 2010). In the study, children were evaluated by their teachers. The Cronbach's alpha internal consistency coefficients for the sub-dimensions of the scale were .83 (social competence), .76 (anger/aggression) and .72 (anxiety/introversion).

Emotion Regulation Scale (ERS)
The ERS developed by Shields and Cicchetti (1997) was adapted into Turkish by Batum and Yağmurlu (2007). The scale consists of two sub-dimensions, "Emotion Regulation", "Variability-Negativity", which evaluates preschool and school children's emotional states, their regulation and expression of emotions according to environmental conditions. The scale, which can be filled in by the teacher or the family, is a 4-point Likert-type scale and consists of 24 items. The Emotion Regulation sub-dimension of the scale consists of 8 items, including 1, 3, 7, 15, 21, 23, 16R, 18R items. In scoring, the scores of the items marked with R were reversed (1=4, 2=3, 3=2, 4=1). High scores on this sub-dimension indicate high emotion regulation. The lowest score that can be obtained from the

Emotion Regulation sub-dimension is 8 and the highest score is 32 (Batum & Yağmurlu 2007). The following items are given as examples found in ERS: "S(he) might say s(he) is upset, angry, or scared."; "If his/her peers act aggressively or forcefully interfere with him/her, s(he) appropriately displays the negative emotions (anger, fear, anger, distress) s(he) may feel in these situations."; and "S(he) puts him(her)self in the shoes of others and understands their feelings; takes care of others when they are sad or distressed."

The Variability-Negativity Sub-dimension of the Scale consists of 16 items as 2, 4R, 5R, 6, 8, 9R, 10, 11R, 12, 13, 14, 17, 19, 20, 22, 24 items. High scores indicate high level of regulation disorders. In scoring, the items marked 'R' are to be reverse scored. The lowest score that can be obtained from the negativity sub-dimension is 16 and the highest score is 64 (Batum & Yağmurlu, 2007). In this study, the Cronbach's alpha internal consistency coefficient of the Emotion Regulation sub-dimension of the scale was calculated as .61 and the variability/negativity sub-dimension was calculated as .75. Some of the example items are given such as "Mood is very variable (a child's mood is difficult to predict because s(he) can easily become sad when s(he) is cheerful and happy)."; "Easily frustrated and angry (grumpy, angry)."; and "S(he) is prone to outbursts of anger and tantrums."

Screen time questionnaire created by the researcher to determine the children's passive and AST entails two questions. The questionnaire is filled out by the parents to identify the daily average AST and PST. Parents are also pre-informed what is AST and what is PST.

Data Collection
Ethical approval for this study was obtained from Pamukkale University under approval number 68282350/2018/G06.

The research data related to personal information, emotion regulation skills, and screen time of the children were collected from parents via Google Forms. The forms were delivered to the parents by the teachers who participated in the research through various networks (e-mail, social media, etc.). In the study, data on emotional and behavioural problems of children, such as anger-aggression and anxiety-introversion, and the social skills expected to develop in this period were provided by the children's classroom teachers. Based on their observations, teachers randomly selected 10 children in their classes and filled out SCBE-30.

Data Analysis
The SPSS 22 software program was used to analyse the data. The kurtosis and skewness values of the variables were examined to determine whether the variables had a normal distribution. If the kurtosis and skewness values range between -1.5 and +1.5, the distribution is considered normal (Tabachnick et al., 2007). The kurtosis and skewness coefficients of the variables related to passive screen time, active screen time, SCBE-30, and the sub-dimensions of the Emotion Regulation Scales in the study are presented in Table 2.

Tablo 2. Normality test results

Variables	*N*	Skewness	Kurtosis
Social competence	504	-.549	-.051
Anger/Aggression	504	.995	1.041
Anxiety/Introversion	504	1.109	1.430
Emotion regulation	504	-.048	-.525
Variability-Negativity	504	.595	1.490
PST	504	.867	.986
AST	504	1.049	.367

The values in Table 2 indicate that the data are normally distributed. For this reason, parametric tests were used for the data analysis. Pearson's Correlation Coefficient was used to find the relationship between PST and AST and scores obtained from SCBE-30 and Emotion regulation scales.

RESULTS

The findings of the study are presented in Table 3 through Table 5. Table 3 presents descriptive statistics of PST and AST in minutes. Table 4 show PST and ASTs based on gender, age, sibling status and parent's education level, respectively. Table 5 presents the correlations among PST-AST and children's social development and emotion regulation skills.

Table 3. Descriptive statistics of PST and AST.

	36-48 month		48-60 month		60-72 month		
	Male (*n*=35)	Female (*n*=36)	Male (*n*=74)	Female (*n*=79)	Male (*n*=144)	Female (*n*=136)	Total (*N*=504)
PST – Mean	135.7	**116.1** 90.2	136.4 82.8	106.2	**154.9** 85.7	131.8 86.1	134.2
PST – SD	93.8			66.2			84.7
AST – Mean	83.0	**71.9**	87.1	77.6	**101.5**	80.7	86.64
AST – SD	88.9	83.1	81.3	69.0	79.4	77.3	78.8

It is seen from the Table 3 that the average PSTs of children is 134.2 minutes per day, and the average AST is 86.64 minutes per day. In Table 3, it can be said that the average PST (Mean=154.9min) and AST (Mean=101min) of 60-72 month-old boys is the highest. The high values of standard deviations in the table resemble the variability of the AST and PSTs of the participants. This indicates that the PSTs of some participants in the 60-72 month-old group can reach up to more than 4 hours per day!

In Table 4, which illustrates the differences in children's PST based on some demographic variables, the PSTs of the participants significantly differ according to their gender (t= -3.394), age (F= 4.071), and education levels of mother (F= 6.210) and father (F= 6.289) (p<.05). According to the findings presented in Table 4 the ASTs of the participants significantly differ by their gender (t= -2.319), sibling status (t= -2.195), and educational levels of mother (F= 9.093) and father (F= 11.325) (p<.05).

Table 5. Correlations among passive-AST and children's social development and emotion regulation skills

	2	3	4	5	6	7
1.PST	.513**	-.123**	.109*	.130**	-.114*	.176**
2.AST		-.140**	.147**	.117**	-.190**	.202**
3.Social competence			-.265**	-.367	.526**	-.444**
4.Anxiety/Introversion				.392**	-.349**	.368**
5.Anger/Aggression					-.211**	.666**
6.Emotion regulation						-.420
7.Variability/Negativity						-

*p<.05 **p<.01

Table 4. PST and AST based on demographics of children

Variables	Gender	n	PST Mean	SD	Std. Error Difference	t	p	AST Mean	SD	Std. Error Difference	t	p
1	Female	251	121.51	81.481	7.470	-3.394	.001**	78.51	75.432	6.989	-2.319	.021*
2	Male	253	146.86	86.164				94.72	81.385			
Variables	Age (Month)	n	Mean	SD	F	p	Significant Difference	Mean	SD	F	p	Significant Difference
1	36-48	71	125.77	91.880	4.071	.018*	2-3	77.39	85.602	1.243	.289	-
2	48-60	153	120.82	75.962				82.22	75.110			
3	60-72	280	143.71	86.467				91.41	78.947			
	Total	504	134.23	84.737				86.64	78.818			
Variables	Sibling status	n	Mean	SD	Std. Error Difference	t	p	Mean	SD	Std. Error Difference	t	p
1	None	141	129.01	80.939	8.411	-.863	.389	74.89	72.548	7.436	-2.195	.029*
2	Yes	363	136.26	86.190				88.87	81.655			
Variables	Mother's Education Level	n	Mean	SD	F	p	Significant Difference	Mean	SD	F	p	Significant Difference
1	Primary / Secondary School	83	143.55	91.410	6.210	.002**	2-3	107.59	81.594	9.093	.000**	2-3
2	High school	136	152.19	85.029				100.62	89.454			
3	University	285	122.95	80.995				73.87	69.938			
	Total	504	134.23	84.737				86.64	78.818			
Variables	Father's Education Level	n	Mean	SD	F	p	Significant Difference	Mean	SD	F	p	Significant Difference
1	Primary / Secondary School	113	152.24	90.022	6.289	.002**	1-3; 2-3	104,60	90,798	11.325	.000**	1-3;2-3
2	High school	130	143.58	82.015				102,73	77,116			
3	University	261	121.78	81.992				70,85	70,686			
	Total	504	134.23	84.737				86.64	78.818			

*p<.05   **p<.01

According to the findings presented in Table 5, it is seen that there is a positive significant relationship between the PSTs of the participants and Anxiety/Introversion (r=.109, p<.05), Anger/Aggression (r=.130, p<.01) and Variability/Negativity (r=.176, p<.05) .01). Similar findings were obtained with respect to the children's AST. As detailed in Table 5, as the PST and ASTs of the participants increased, the Anxiety/Introversion levels, Anger/Aggression and Variability/Negativity scores of the children increased. Table 5 also demonstrates that there is a significant negative correlation between children's PST/ASTs and their Social Competence (r=-.123, p<.01; r=-.140, p<.01) and Emotion Regulation skills (r=-.114, p<.01). 05; r=-.190, p<.01).

DISCUSSION, CONCLUSION, and RECOMMENDATIONS

Children's demographics and AST/PST
In the updated report by the APA (2016), it is recommended that children aged 2 to 5 should get an hour or less of screen time per day and that quality content should be provided to children during this period. The Australian government limits screen time to no more than one hour per day for children aged 3 to 5 and recommends no screen time for children younger than 2 (Active Healthy Kids Australia, 2014).

The findings of the present study (Table 3) indicated that the PST of 36-72 months old children was 134.2 minutes per day, and the AST was 86.1 minutes. The average daily total screen time of children was 220.3 minutes. Konca's (2021) study revealed that children spent approximately 2 hours for watching TV, little more than an hour for using smartphones, and almost 40 minutes for using tablet computers every day. A study conducted by Hu et al. (2020) in China demonstrated that the PST of young children was 2.16 hours. Merdin (2017) reported that children's television screen time is 100 minutes per day, and 57 minutes for other mobile devices with screen. Although, OFCOM's report (2021) announces that children spend more time using mobile devices compare to watching television, the present study concluded that young children have more PST while watching television. These results are significantly higher than the recommended one hour per day screen time (APA, 2016).

The results of the present study (Table 4) display that boys spend more AST/PST than girls; a similar finding as reported in the literature (Saunders & Vallance, 2017; Trinh, et al., 2021). Some studies in the literature informed that there was no significant gender difference in children's screen time (Akkuş et al., 2015; Hinkley et al., 2012; Hu et al., 2020). According to the existing literature, while the screen time does not differ by gender among young children, there is a difference in favor of boys in older children. The present study revealed differences among young children as well.

In the current study (Table 4), the PST differs significantly according to the age of the children, and the longest PST recorded belongs to the group of 60-72 month-year old children. Although the AST does not differ significantly according to age, the age group accumulating the most AST is the 60–72-month-old group. In their research with young children, Çelik, et al. (2021) illustrated the positive relationship between the child's age and his(her) screen time. In the OFCOM's report (2021), it is stated that many children aged 3-7 watch videos with very different content than television broadcasts, almost all of them use video sharing sites. Less than half of the children aged 5 to 7 play online games. The report also states that the likelihood of having access to appropriate devices increases with the age of the child. In addition to that, use of all devices may lead to an increase in children's screen time. The number of screen-enabled digital devices at home is linked with children's screen time (Işın, 2019). Especially the presence of a television and other devices such as mobile phones and tablets in a child's bedroom may increase this time even more (Işın, 2019; Çelik, et al., 2021). Olgun and Tuğrul (2019) asserted that children engage with the screen at an early age, and the time spent in front of screens increases as they grow.

According to the results of the current research (Table 4), children with siblings have higher rates of than single child, and the PST did not differ significantly. The study also demonstrated that parental education had a significant impact on children's PST and AST (Table 4). Furthermore, it was observed

that the PST and ACT of the children of university graduate parents were lower. Given the relevant literature, it is seen that children's screen time differs by the parental education level (Eslami Shahrbabaki, et al., 2020; Işın, 2019; Çelik, et al., 2021; Trinh, et al., 2019) and the number of siblings (Hu et al., 2020) Çelik, et al. (2021) states that screen time of children is increased by the following reasons: low parental educational levels, absence of family rules about screen use, children's ownership of devices with screens, and short of screen use recommendations by the related professionals. Işın (2019) put forward that the length of time spent watching TV (PST) among children with university graduate parents is shorter than children whose parents holding a lower educational degree. In the same study, it was determined that children with university graduate parents spend less AST on smartphones. In their study in Australia, Hesketh et al. (2007) suggested that mother's education level influenced the child's TV time, and as the mother's education level increased, the children's screen time decreased. A study carried out by Lapierre et al. (2012) yielded similar results that children of parents who hold more than high school degree were exposed to less screen time, i.e., 2,5 hours, versus the screen times of other parents' children, i.e., approximately 5 hours per day. According to Barkin et al. (2020), active parental mediation is associated with media exposure behaviors of children aged 2 to 5 years. As a result, it can be argued that as the parent's educational level increases, the parental awareness about the screen increases whereby children spend less time on screen and tend to have a better health.

According to the results of the current research, children with siblings have higher rates than single children, yet their PST did not differ significantly (Table 4). Işın (2019) asserts that the length of time spent watching TV and using smartphones and tablets do not differ according to the number of siblings. However, Hu et al. (2020) found that the PST of young children differs by the number of siblings, i.e., children without siblings spend more PST than children with siblings. One of the most probable reasons for this difference is interactions among siblings. Children in the study group can have an older sibling. Supposing that an older sibling uses phones and tablets such as digital games and social media more, this serves as a role model for the child and might lead to increased AST (Table 4). Previous studies in the literature show that there is a positive relationship between child's screen time and child's home environment (Hu et al., 2018; Jago et al., 2014; Işın, 2019; Sanders et al., 2016; Wong et al., 2020).

AST/PST and social/emotional development of children
The current study (see Table 5) found that the PST and AST of children were negatively correlated with the sub-dimensions (emotion regulation skills and social competence levels) of the SCBE-30 and Emotion Regulation Skills scales. On the other hand, the PST and AST of children were found to be positively correlated with the the sub-dimensions related to negative behaviors (anger/aggression, Introvert/anxiety, and negativity scores) (see Table 5). In view of data obtained, it can be interpreted that the increase in children's screen time (passive or active) has a positive impact on the children's undesirable behaviors.

Several studies in the literature have revealed the relationship between PST of young children and their social/emotional development and behavioral problems. Hu et al. (2020) found a negative relationship between PST and social skills of young children. Parkes, Sweeting, Wight, and Henderson, (2013) claimed that seven-year-old children who watch three or more hours of TV in the last two years were at a greater risk of behavioral problems. They found association among TV exposure, aggressive behavior and bullying. Eslami Shahrbabaki et al. (2020) underlined that behavioral disorders and the aggression behaviors of young children were positively associated with the duration of watching TV. Eslami Shahrbabaki et al. (2020) also reported that using tablet over two hours every day was significantly related to anti-social behaviors while using a smartphone more than two hours a day was positively related to anti-social behaviors, anxiety, and behavioral problems. Gülay et al. (2018) argued that the duration of watching television during the week, the total duration of use of portable computers and all mobile technologies significantly predicted the social influence

level of children among their peers. The study also revealed that the duration of children's use of smartphones during the week significantly predicted the social preference levels of children among their peers. Cerniglia et al. (2021) found a negative relationship between the use of digital devices like smartphones and tablets at 4 years of age and children's emotion regulation skills. According to the result obtained from Omrok's study (2019), the score of emotion regulation and secure attachment is negatively correlated with the duration of using technological devices. There are other studies report similar results (Elhai et al., 2018; Işık Karaşahin, 2021).

Unlike the findings of the present study, other studies in the existing literature detected a positive relationship (Güral & Önder 2015; De Decker et al., 2012; Wong, et al., 2015) or no significant relationship (Hu et al., 2020; Jackson, 2018; Omrak, 2019) between children's passive and AST and their social skills. Examining the effects of TV time on social skill levels of young children, Güral and Önder (2015) found that children who spend more time watching TV demonstrated higher social skills than those who spend less time watching TV. Omrak, (2019) found no significant relationship between TV time of young children and their emotion regulation skills. Hu et al., (2020) pointed out that there was no correlation between AST of Chinese children and their social development and behavioral problems.

Given the relevant studies in the literature, it can be contended that there are different results regarding the relationship between children's screen time and social development, and between children's screen time and their emotion regulation skills in early childhood. Further, a few studies focused on the relationship between children's screen time and their emotion regulation skills. Emotion regulation skills in children have an essential role in their development (Cohodes, et al., 2021). Emotion regulation skills, which refer to children's ability to focus attention, organize themselves for a purpose, and regulate their difficult and intense emotions, have an impact on many areas of children's development, such as creativity, academic success, social competence, and sports participation (Bayındır, et al., 2018; Demirci, et al., 2020; Gülay Ogelman, et al., 2021; Köse, 2019; Yılmaz & Akcan, 2021). Additionally, disorders related to emotion regulation are associated with multiple problems such as behavioral disorders, aggression, anxiety, and mood swings (Ersan & Tok, 2019). Omrak (2019) found no relationship between the children's time of watching TV alone and emotion regulation skills, and the children's total screen time was found to be inversely proportional to their emotion regulation skills. It was also stated that children with poor emotion regulation skills might apply to technological tools to regulate their emotions (Omrak, 2019). Cerniglia, et al. (2021) emphasized that there was a negative relationship between the use of digital devices such as smartphones and tablets at 4 years of age and children's emotion regulation skills. Very few studies have shown that children's AST is negatively associated with their emotion regulation skills. The present study revealed that both AST and PST are correlated with children's emotion regulation skills negatively and significantly. This outcome can be emanated from the content that children are exposed to during their PST. APA (2016) stresses the importance of the quality of children's media.

It can be contended that the positive relationship between children's screen time and social competence levels, which was obtained in previous studies in the literature, can be related to the media content that children engage in while viewing. Young children exposed to media with a violence content can learn and normalize those unwanted behaviors through observation. Exposure to violent games, television programs, etc. may lead to aggressive behaviors in children (Demir & Yıldırım Şişman, 2021; Huesmann et al., 2003; Manganello & Taylor, 2009; Morgan, 2020; Saleem, et al., 2012; Yaşar & Paksoy, 2011). In addition, exposure to media with prosocial content increases children's aggressive cognition and aggression-related variables whereas children's social competency skills may increase (Coyne et al., 2018; Liu et al., 2015; McHarg & Hughes, 2021).

Conclusions

As discussed in the previous section, the key conclusions can be expressed as follows. Supporting the findings reported in the related literature, the present study revealed that the average daily total screen time of children is much greater than the recommended screen times. In addition, boys spend more active/passive screen time than girls. Similarly, children with siblings have higher active screen times than the single child, though passive screen times did not differ significantly. The study also demonstrated that parental education had a significant impact on children's passive and active screen times. It was observed that the children of university graduated parents have the lowest passive and active screen times as compared to other children in the study group. Thus, it can be argued that as the level of the parent's education level increases, parental awareness of the screen increases, so their children spend less time watching screens and tend to have better health.

Further findings suggest that the increase in children's active screen time (AST) and passive screen time (PST) were negatively correlated with the emotion regulation skills and social competence levels. On the other hand, the PST and AST of children were found to be positively correlated with the negative behaviors such as anger/aggression, introvert/anxiety, and negativity scores. It can also be interpreted that the increase in children's screen time (passive or active) has a positive impact on the children's undesirable behaviors.

Recommendations

Recommendations can be stated under two categories. One for caregivers and the other for researchers. The recommendations are mainly around the key findings reported in the conclusion sections.

The main problem is the total screen time to which the children exposed. Therefore, the caregiver should find innovative and better approaches to minimize the screen time of the children under their responsibility. The parents or caregiver can create such fulfilling environment for the child that the child does not prefer to use devices with screens. This requires sincere effort by the adults as they are also under the influence of devices with screens like mobile phones. Physical games, boxed games, art events etc. may help. The adult caregivers may get benefit from online training and reading relevant books etc. to become more innovative. As the findings indicated, a single child is likely to spend more time with screen integrated devices, the care givers of that children can create an environment where the friends are present. The outdoor activities are always helpful for all children to stay away from screens. Besides the individual efforts of the children's care givers, preschools and civil society organizations have the potential to bring together the efforts to reduce screen times of children through collaboration and various types of events. In order to control and reduce the children's screen times, software-based tools can be researched and be used in devices of the children.

There are some recommendations for the researchers mostly based on the limitations of the current study. The study can be expanded to consider both central and rural areas across different cities to understand the potential differences. The independent variables used in the study are limited to the child's gender, age, sibling status, and parental education level. It is important to note, however, that there are other factors that influence screen time in children. It would be useful to investigate the effects of different variables such as the socio-economic status of the family, the place of residence, the number of screen-enabled devices at home, the age of first screen exposure, parents' use of screens, and digital parenting awareness levels on children's screen time. Further studies may focus on the content that children are exposed to during passive and active screen times. Conducting research with multiple data collection tools, such as observation and interviews, and using qualitative and/or mixed models can provide more in-depth information about the topic. Longitudinal studies can be performed to determine the effects of passive and active screen times on children in the 'age of screens'.

Limitations
This research is limited to 504 children attending preschools in the center of the city of Denizli in Turkey. The independent variables used in the study are limited to the child's gender, age, sibling status, and parental education level. Another limitation of this study is that children's social activities and emotion regulation skills were only associated with their passive and active screen times. In the study, the SCBE-30 was used to identify the social competence levels of the children. Additionally, the emotion regulation skills scale was employed to determine the children's emotion regulation skills, and lastly, parents were called on to estimate the active and passive screen times of their children. This study is cross-sectional. Therefore, it is not possible to conclude that behavioral problems and low levels of emotion regulation skills are solely due to screen time. There is a probability that children with behavioral problems and low emotion regulation skills are inclined to watch screens.

Ethics and Conflict of Interest
This study was presented as an oral presentation at the 3rd Educational Research Congress held in Istanbul on October 14-15, 2022. Ethical approval for this study was obtained from Pamukkale University under approval number 68282350/2018/G06.

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