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Influence of digital media on child behaviour of higher primary school children

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Abstract

The study conducted in Dharwad, Karnataka, aimed to evaluate the influence of digital media usage on child behaviour of higher primary school children. The research involved 240 students (120 urban and 120 rural) in 5th, 6th, and 7th grades from both private and government schools. Various tools, including a self-structured questionnaire for digital media usage, Child behavior checklist (CBCL) by Achenbach and Rescorla (2001), and the Socio-economic Status Scale, were employed. The findings indicated that 56.7% of children exhibited moderate digital media usage, 32.9% had high usage, and 10.4% had low usage. Smart TVs were the preferred device for the majority (37.9%), followed by smartphones (27.1%), tablets (19.2%), and computers (15.8%). The most-watched digital content included National Geographic Kids (22.1%), Disney Junior (21.7%), game apps (20.8%), social media (17.9%), and Nick Jr (17.5%). In terms of purpose, the majority used digital media for homework and school-related activities (25.0%), followed by entertainment and media consumption (22.1%). Gaming was the purpose for 16.3%, while only 10% used digital media for communication. Regarding time spent, the majority spent 1 to 2 hours (42.10%), followed by 3 to 4 hours (26.70%), with fewer spending less than 1 hour (19.60%), and a minority exceeding 4 hours (11.70%) on digital media activities. Children shows that 58.80 percent of children have borderline child behaviour, while 41.30 percent of children exhibit normal behaviour. Three-fourths (72.50%) of children exhibit borderline externalizing behaviour, while 27.50 percent of children display normal externalizing behaviour and none of fall in clinical externalizing behaviour The study identified a significant association and difference between digital media usage, time spent on digital media, child internalizing and externalizing behaviour among higher primary school children.

Keywords: Digital media, internalizing behaviour, externalizing behaviour, children

Introduction

According to digital world 2023 recent research, South Africans are the most active online users, dedicating a significant 9 hours 30 minutes per day to connected devices and services. Brazil closely follows, with its internet users spending an average of 9 hours and 25 minutes per day, and the Philippines ranks third at 9 hours and 7 minutes daily. In contrast, Japan stands on the opposite end of the spectrum, where the average time spent online is just under 4 hours per day. Interestingly, TV consumption has seen a notable decline in recent months, with GWI's latest survey data indicating that internet users have reduced their TV viewing time by 13 minutes over the past year, resulting in a relative 6.1 percent drop-in time spent on both streaming and broadcast TV content.

The use of digital media in children's lives offers a range of both advantages and potential drawbacks. When employed appropriately, digital media serves as a valuable educational tool, offering content that aids children in acquiring new skills, understanding concepts, and learning facts. Certain digital games and activities are designed to enhance problem-solving abilities, critical thinking, and spatial awareness, promoting cognitive development. Furthermore, digital platforms provide children with creative outlets through tools such as drawing programs and digital music creation, fostering self-expression and artistic exploration. However, it's important to recognize the potential negative consequences as well. Excessive screen time can lead to sedentary lifestyles, which, in turn, may contribute to health problems like obesity. Overindulgence in digital media can also reduce face-to-face social interactions, a critical component for children to develop essential social skills. Additionally, there's the risk of exposure to violent, explicit, or age-inappropriate content, which can have adverse effects on a child's emotional and psychological development. Furthermore, online spaces can sometimes become breeding

grounds for cyberbullying, posing threats to a child's mental and emotional well-being.

Materials and Methodology

The population for the study comprised in higher primary school children in the age group of 11 - 13 years studying in 5th – 7th standard from schools of Dharwad taluk, Karnataka state.

The sample for the present study consisted of 240 students from 8 higher primary schools of Dharwad taluk, including private and government schools. Among them 120 students were four urban schools and 120 students from four rural schools studying in 5-7th standard of Dharwad taluk, Karnataka.

Data were collected through self-structured questionnaire used to assess digital media usage, child behaviour checklist and socio- economic status scale by Aggarwal *et al*. (2005)

Results

Table 1 presents the demographic characteristics of higher primary school, focusing on age. A uniform distribution of 33.33 percent was observed among the 11, 12, and 13 years age groups. The gender distribution was equally split, with males and females each constituting 50 percent of the participants. In terms of academic standard, 80.00 percent of the students hailed from 5th, 6th, and 7th grades in both government and private schools. As for ordinal position, 34.10 percent were first-born, 44.60 percent were second-born, and 21.30 percent were born later. In relation to locality, an even split of 50.00 percent was observed between participants from rural and urban areas.

Figure 1 shows children's preferred digital devices, with Smart TVs (37.9%) leading, followed by smartphones (27.1%), tablets (19.2%), and computers (15.8%). In Figure 2, the majority engage with National Geographic Kids (22.1%), Disney Junior (21.7%), game apps (20.8%), social media (17.9%), and Nick Jr (17.5%). Figure 3 reveals that many children use digital media for homework (25.0%), followed by entertainment (22.1%) and gaming (16.3%). Only 10% use digital media for communication. Figure 4 indicates that most children spend 1 to 2 hours (42.10%) on digital media, followed by 3 to 4 hours (26.70%), less than 1 hour (19.60%), with a small percentage (11.70%) dedicating more than 4 hours. Figure 5: Majority of respondents showed moderate digital media usage (56.7%), followed by high usage (32.9%), and a smaller proportion with low usage (10.4%). Figure 6 depicts urban children displayed predominantly moderate digital media usage (54.16%), followed by high usage (36.60%), and a minor percentage with low usage (9.16%). Similarly, rural children engaged in moderate usage (54.16%), high usage (30.25%), with a small percentage having low usage (10.0%). In Figure 7 government institutions, over half of the children had moderate digital media use (54.16%), followed by high usage (35.83%), and a minority with low usage (10.0%). Conversely, in private institutions, the majority had moderate usage (59.16%), high usage (30.00%), with a small percentage having low usage (10.83%).

Table 1: Demographic characteristics of higher primary school children (N- 240)

Characteristics	Category	Frequency	Percentage
Age	11 years	80	33.33
	12 years	80	33.34
	13 years	80	33.33
Gender	Male	120	50.00
	Female	120	50.00
Education	5th std	80	33.33
	6th std	80	33.34
	7th std	80	33.33
Ordinal position	First born	82	34.10
	Second born	107	44.60
	Later born	51	21.30
Locality	Urban	120	50.00
	Rural	120	50.00

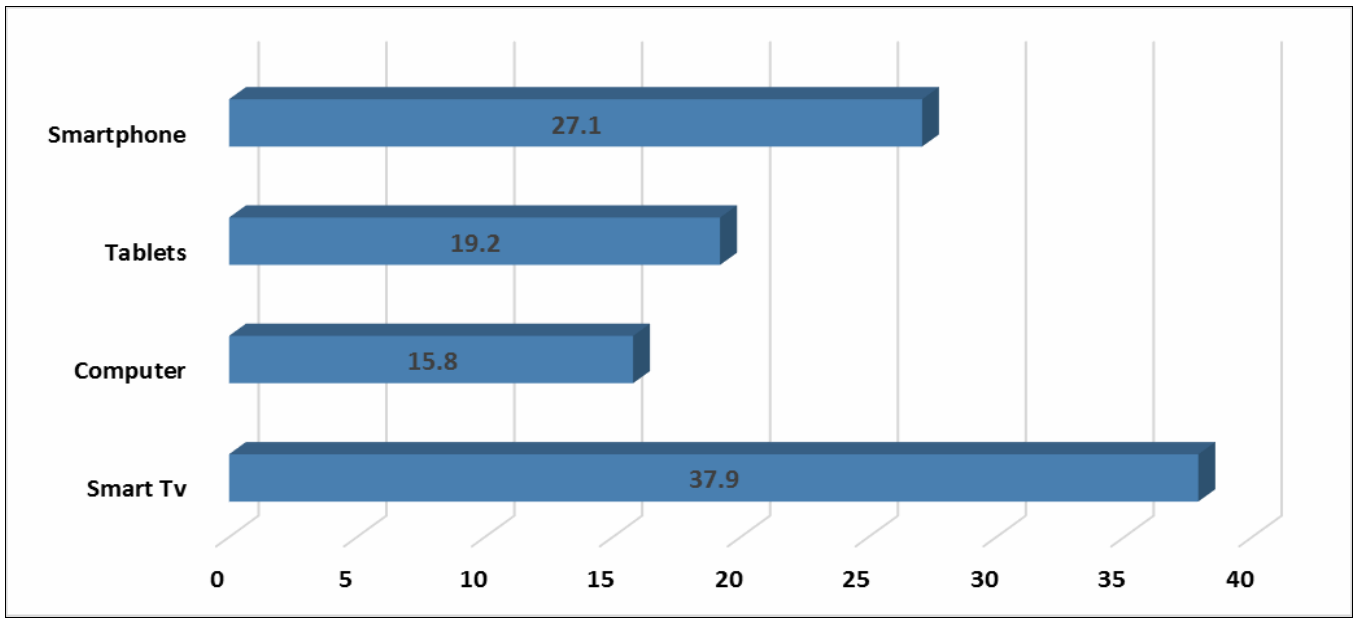

Fig 1: Distribution of respondents according to type digital device use

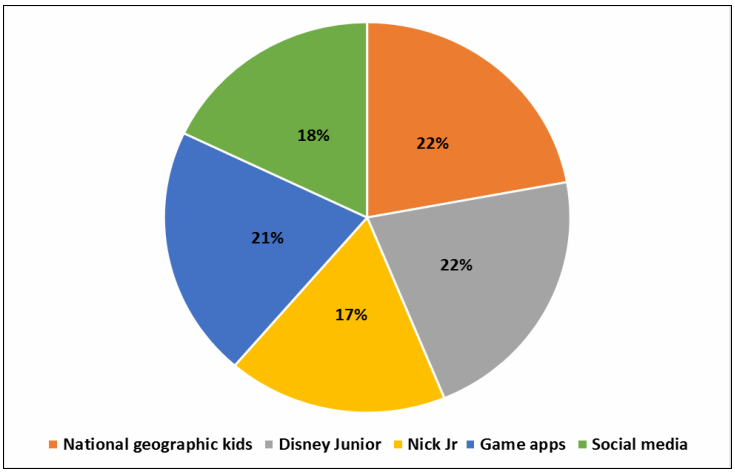

Fig 2: Distribution of respondents according to type of digital sites

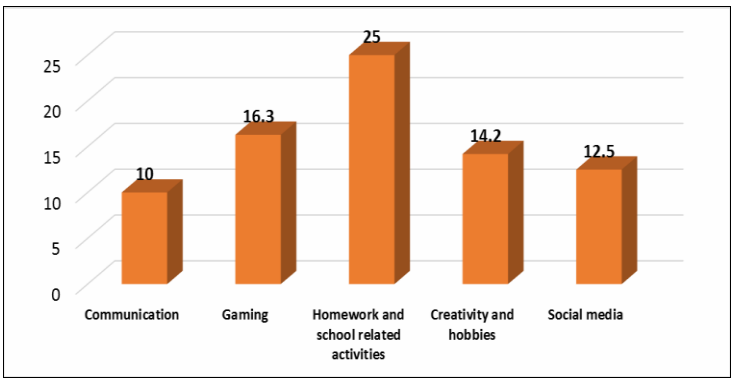

Fig 3: Distribution of respondents according to purpose of digital media usage

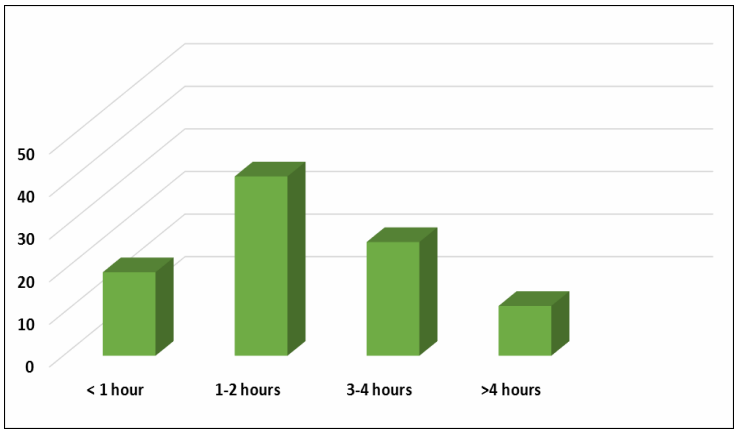

Fig 4: Distribution of respondents according to time spent on digital media usage

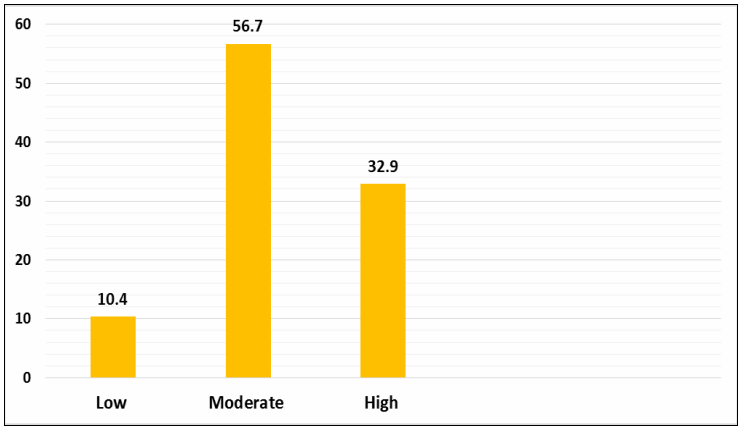

Fig 5: Distribution of respondents according to digital media usage

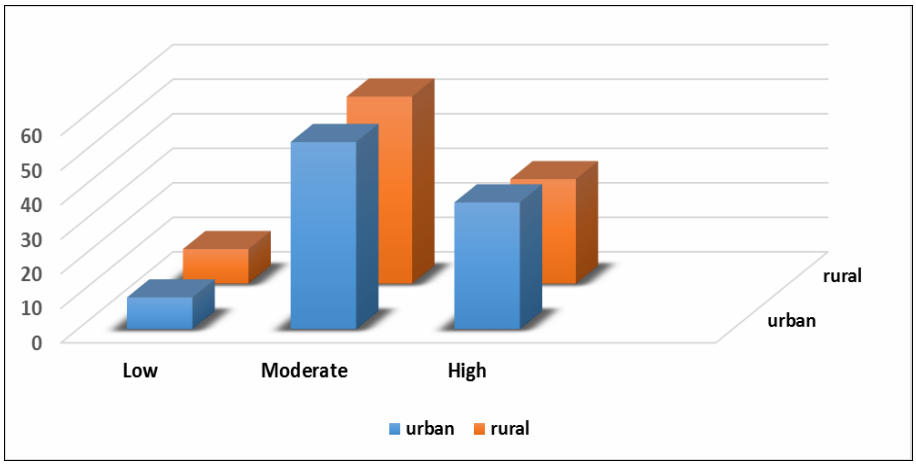

Fig 6: Distribution of digital media usage among urban and rural higher primary school children

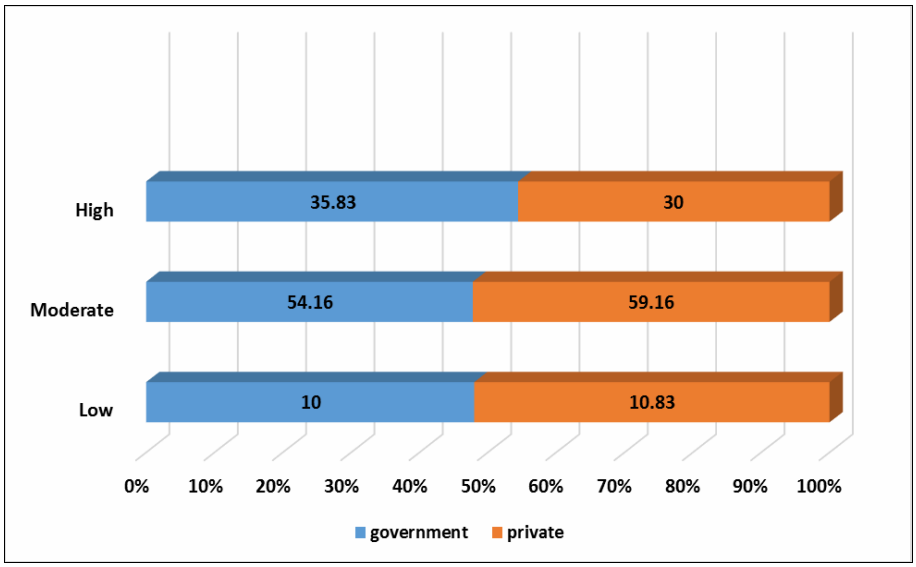

Fig 7: Distribution of respondents according to digital media usage based on education institution of higher primary school children

Table 2 outlines the demographic characteristics of parents with higher primary school children. In terms of fathers' age, 43.33% were below 35 years, 43.33% were aged 36-45, and 13.40% were over 45. For mothers, 47.10% were below 30, 40.40% were aged 30-40, and 12.50% were over 40. Regarding education, 14.20% of fathers had primary to < 10th pass education, 43.80% had 10th to < Graduation, 38.30% had Graduation, and 3.80% had post- graduation. For mothers, 7.90% had primary to < 10th pass education, 17.50% had 10th to < Graduation, 69.60% had Graduation, and 5.00% had post-graduation. Concerning occupation, 50.40% of fathers worked in the private sector, 24.20% in the central/state/public sector, 15.40% in services, transport, or cultivation, 5.80% were self-employed (> Rs. 5,000), and 4.20% were self-employed (< Rs. 5,000). For mothers, 39.16% were in services, transport, or cultivation, 30.0% were in the private sector or independent business, 12.91% in the central/state/public sector, and 12.91% were self-employed (< Rs. 5,000). In terms of family type, 86.3% belonged to nuclear families, and 13.8% belonged to joint families. Regarding socio-economic status, 32.10% were upper middle class, 30.4% were lower middle class, 27.08% were high income class, 7.1% were in the poor category, and 3.33% were in the upper higher class.

Table 3 presents the overall distribution of respondents according to the child's internalizing behaviour among higher primary school children. It indicates that 58.80 percent of children have borderline child behaviour, while 41.30 percent of children exhibit normal behaviour.

Table 4 depicts association and comparison of type of digital device based on child internalizing behaviour of higher primary school children. With respect to Smart Tv usage, 50.50 percent of respondents exhibited internalizing borderline behaviour, while 49.50 percent displayed normal internalizing behaviour. Further Computer usage category 73.70 percent of respondents had internalizing borderline behaviour, and 26.30 percent had normal internalizing behaviour. Among those using Tablets category, 78.30 percent had borderline internalizing behaviour, and 21.70 percent exhibited normal internalizing behaviour. Further smartphone usage category 47.70 percent of respondents had borderline internalizing behaviour, and 52.30 percent had normal internalizing behaviour. There was significant association (χ^2 - 16.528**) at 1 percent level, but there is no significant difference (F-2.130NS) was observed between child internalizing behaviour and type of digital devise among higher primary school children.

Table 2: Demographic characteristics of parents of higher primary school children, N=240

Variables	Categories	Frequency	Percentage
Age of father	<35 years	104	43.33
	36-45 years	104	43.33
	>45 years	32	13.40
Age of mother	<30 years	113	47.10
	30-40 years	97	40.40
	>40 years	30	12.50
Education of father	Primary pass but < 10th pass	33	14.20
	10th class pass but < Graduation	105	43.80
	Graduation	92	38.30
	Post graduation (non-technical incl. Ph.D)	10	3.70
Education of mother	Primary pass but < 10th pass	19	7.90
	10th class pass but < Graduation	42	17.50
	Graduation	167	69.60
	Post graduation (non-technical incl. Ph.D)	12	5.10
Occupation of father	Self-employment with income < Rs. 5,000 (labourer, housewife)	10	4.20
	Self-employed with income > Rs. 5,000 (shops, petty business)	14	5.80
	Service at shops transport, own		
	cultivation of land	37	15.40
	Service in private sector or independent business (employing 2- 20 persons)	121	50.40
	Service in central/state/public sector	58	24.20
occupation of mother	Self-employment with income < Rs. 5,000 (labourer, housewife)	31	12.9
	Service at shops transport, own cultivation of land	94	39.16
	Service in private sector or independent business (employing 2- 20 persons)	84	30.0
	Service in central/state/public sector	31	12.91
Family type	Joint	33	13.70
	Nuclear	207	86.30
Socio economic status	Very poor	-	-
	Poor	17	7.10
	Lower middle	73	30.40
	Upper middle	73	30.40
	High	77	32.10
	Upper higher	8	3.33

Figures in parenthesis indicates percentage

Table 3: Distribution of respondents according to child internalizing behaviour of higher primary school children, N -240

Child internalizing behaviour	Frequency	Percentage
Clinical Range	-	-
Border Line	141	58.8
Normal	99	41.3
Total	240	100.0

Table 4: Association and comparison between type of digital device used based on child internalizing behaviour of higher primary school children, (N – 240)

Type of digital device use	Child internalizing behaviour			Modified χ^2	Mean ± SD	F-value
	Borderline	Normal	Total			
Smart Tv	46 (50.50)	45 (49.50)	91 (100)	16.528**	62.91±5.43	2.130NS
Computer	28 (73.70)	10 (26.30)	38 (100)		64.82 ±4.73	
Tablets	36 (78.30)	10 (21.70)	46 (100)		64.30 ±5.69	
Smartphone	31 (47.70)	34 (52.30)	65 (100)		62.63 ±4.80	

Figures in parenthesis indicates percentages
NS – Non significant, ** significant at 0.001 level

Table 5: Association and comparison between time spent in digital media activities based on child externalizing behaviour, (N- 240)

Time spent on digital media	Child internalizing behaviour			Modified χ^2	Mean ± SD	F-value
	Borderline	Normal	Total			
< 1 hour	32 (68.10)	15 (3.19)	47 (100)	24.42**	64.81 ±3.36	5.17**
1 -2 hours	46 (45.50)	55 (54.50)	101 (100)		62.17 ±5.96	
3-4 hours	37 (57.80)	27 (42.20)	64 (100)		63.28 ±5.47	
>4 hours	26 (92.60)	2 (7.10)	28 (100)		65.79 ±2.84	

Figures in parenthesis indicates percentages
** significant at 0.01 level

Table 5 presents association and comparison of time spent on digital media based on child internalizing behaviour of higher primary school children. In the less than 1hour digital media usage, 68.10 percent of respondents exhibited borderline internalizing behaviour, while 31.90 percent displayed normal internalizing behaviour. Further 1 – 2 hours digital media usage category 45.50 percent of respondents had borderline internalizing behaviour, and 54.50 percent had normal internalizing behaviour. Among those using 3 – 4 hours digital media category, 57.80 percent had borderline internalizing behaviour, and 42.20 percent exhibited normal internalizing behaviour. Further more than 4hours digital media usage category 92.90 percent of respondents had borderline internalizing behaviour, and 7.10 percent had normal internalizing behaviour. There was significant association (χ^2 -22.42**) at 1 percent level, and difference (F- 5.170**) at 1 percent level, was observed between child internalizing behaviour and time spent on digital media among higher primary school children.

Table 6 reveals the distribution of respondents according to the child's externalizing behaviour among higher primary school children. It shows that three-fourths (72.50%) of children exhibit borderline child behaviour, while 27.50 percent of children display normal behaviour and none of fall in clinical externalizing behaviour.

Table 7 reveals association and comparison of digital device used based on child externalizing behaviour of higher primary school children. With respect to smart Tv usage,

73.60 percent of respondents exhibited externalizing borderline behaviour, while 26.40 percent displayed normal externalizing behaviour. Further Computer usage category 89.50 percent of respondents had externalizing borderline behaviour, and 10.50 percent had normal externalizing behaviour. Among those using Tablets category, 56.50 percent had borderline externalizing behaviour, and 43.50 percent exhibited normal externalizing behaviour. Further smartphone usage category 72.30 percent of respondents had borderline externalizing behaviour, and 27.70 percent had normal externalizing behaviour. There was significant association (χ^2 - 11.441*) at 5 percent level, but there is no significant difference (F-2.170NS) was observed between child externalizing behaviour and type of digital devise among higher primary school children.

Table 8 revels association and comparison of time spent in digital media activities based on child externalizing behaviour of higher primary school children With respect to less than 1hour digital media usage, 97.90 percent of respondents exhibited borderline externalizing behaviour, while 2.10 percent displayed normal externalizing behaviour. Further 1 – 2 hours digital media usage category 70.30 percent of respondents had borderline externalizing behaviour, and 29.70 percent had normal externalizing behaviour. Among those using 3 – 4 hours digital media category, 57.80 percent had borderline externalizing behaviour, and 42.20 percent exhibited normal externalizing behaviour. Further more than 4hours digital media usage category 71.40 percent of respondents had borderline externalizing behaviour, and

28.60 percent had normal externalizing behaviour. There was significant association (χ^2 -22.362) at 1 percent level, and difference (F- 6.053**) at 1 percent level, was observed between child externalizing behaviour and time spent on digital media among higher primary school children.

Table 6: Distribution of respondents according to child externalizing behaviour of higher primary school children, (N=240)

Child externalizing behaviour	Frequency	Percentage
Clinical Range	-	-
Border Line	174	72.50
Normal	66	27.50
Total	240	100.0

Table 7: Association and comparison between type of digital device used based on child externalizing behaviour higher primary school children, (N-240)

Type of digital device use	Child externalizing behaviour			Modified χ^2	Mean ± SD	F-value
	Borderline	Normal	Total			
Smart Tv	67	24	91	11.441*	64.24±5.58	2.170NS
	(73.60)	(26.40)	(100)			
Computer	34	4	38		66.05 ±2.91	
	(89.50)	(10.50)	(100)			
Tablets	26	20	46		63.63 ±4.94	
	(56.50)	(43.50)	(100)			
Smartphone	47 (72.30)	18 (27.70)	65 (100)		65.00 ±4.94	

Figures in parenthesis indicates percentages
Significant at 0.05 level, NS- non- significant

Table 8: Association and comparison between time spent in digital media activities based on child externalizing behaviour higher primary school children, (N-240)

Time spent on digital media	Child externalizing behaviour			Modified χ^2	Mean ± SD	F-value
	Borderline	Normal	Total			
< 1 hour	46	1	47	22.362**	66.72 ±1.87	6.053**
	(97.90)	(2.10)	(100)			
1 -2 hours	71	30	101		63.92 ±5.42	
	(70.30)	(29.70)	(100)			

3-4 hours	37	27	64		63.55 ±5.23	
	(57.80)	(42.20)	(100)			
>4 hours	20	8	28		66.04 ±2.71	
	(71.40)	(28.60)	(100)			

Figures in parenthesis indicates percentages
Significant at 0.05 level, ** significant at 0.01 level

Discussion

There was significant association but no significant difference observed between child internalizing behaviour and type of digital device used by higher primary school children (Table 4). The reason might be exposure to violent, frightening, or distressing content in video games, movies, or on social media can lead to increased anxiety and fear among children. Children often compare themselves with others on the type of digital devices used. Unfavorable comparisons can lead to feelings of inadequacy, inferiority and low self- esteem. Marshall *et al.* (2004) [2] reported relationships between sedentary behaviour and watching TV, video/computer games. Paik *et al*. (2016) [4] also found positive correlation between exposure to television violence and manifestation of aggressive behaviour. Furthermore, the study also indicated influence of television violence on the antisocial behaviour. Mathers *et al.* (2010) [3] also found association between the duration of specific media exposures and internalizing behaviour. High video game use was linked to poorer health status and increased levels of depression and anxiety. There was significant association and difference observed between child internalizing behaviour and time spent on digital media among higher primary school children (Table 5). The reason might be prolonged screen time leading to sedentary lifestyle, which is associated with various health issues, including internalizing behaviours like anxiety and depression. The more time spent on digital media, the greater the potential impact on mental health. Excessive use of digital media can lead to social isolation as children spend more time online and less time engaging with peers in person. Twenge *et al*. (2020) [6] reported that the amount of time spent on social media and internet use was more strongly correlated with self-harm behaviours, depressive symptoms, low life satisfaction, and low self-esteem compared to hours spent on electronic gaming and TV watching. These results emphasize the differential impact of various screen time activities on mental health. Svensson *et al.* (2022) [5] reported that among the social media activities studied, only chatting and self-presentation involving posting information about themselves was positively linked to internalizing symptoms. The present study found a significant association between externalizing behaviour and the type of digital device used (Table 6), as well as a significant association and difference between child externalizing behaviour and the amount of time spent in digital media (Table 7). Different digital devices, such as smartphones, Tablets, computers, and gaming consoles, offer various forms of engagement and content. Some devices might be more conducive to activities that could potentially lead to externalizing behaviour, such as aggressive video games or social media platforms with negative interactions. Prolonged screen time may lead to a lack of physical activity and outdoor play, contributing to externalizing issues. The result of the study is supported by the research carried out by (Fors *et al*. 2019) [7] too found a stronger correlation between duration of electronic media use and depression as well as anxiety. Also, various categories of duration of electronic media exhibited differing associations with anxiety and depression; specifically, video gaming and video chatting demonstrated links with anxiety, whereas video watching displayed an association with depression.

Conclusion

Increased digital media usage was found to bring about negative changes in child behavior such as aggression, depression, loneliness and poor social interaction. Schools should conduct workshops and teach children to critically evaluate the content they encounter online. They should be made aware of the potential impact of media on their behavior. Parents should seek professional guidance if they observe signs of anxiety or behavioral changes in their children.

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