

Children's Exposure with Technological Gadgets and its Relationship with Gender, Age, and Family Structure: A study on COVID -19 Pandemic Lockdown at Home

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Abstract

In the context of Gilgit-Baltistan (GB), Pakistan, this study examines the children's exposure with technological gadgets and its relationship with gender, age/grade level, and family structure during Covid-19 pandemic lockdown. Through a survey questionnaire, the data were collected from 150 parents. By using Statistical Package for Social Sciences (SPSS 21.0), the data were analyzed. Both the Descriptive (percentages and frequencies) and Inferential (independent t-test) statistics were applied. The findings of the study revealed that 18% children at informed parents' program level (i.e., 0-3years), 40% at ECD level (3-8years) and 42% at upper primary level were expose with technological gadgets. However, boys were found to be more exposed with technological gadgets (i.e., 70.7%) as compared to girls (i.e., 28%) during Covid-19 Pandemic Lockdown period in GB. Findings showed that 38% children were found to be in nuclear families, 55% children were in joint and only 6% were in extended families. Mostly children use mobile and laptop/ computers (39.3%) whereas only 16.7% children use TV in Gilgit. It was also revealed that 58.7% parents supervise while 41.3% parents do not supervise their children while using technological gadgets. However, there was no significant difference between male and female children across age group. The study recommended to carry out a research study in the future to investigate the family structure and use of technological devices by increasing the sample size and research sites to get more insights.

Keywords: *children' exposure, use of technological gadgets, family structure,*

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Introduction

Covid-19 pandemic, initially reported from Wuhan province of China in December 2019, brought enormous threats to the lives of people and a number of challenges to learners around the globe; however, it created a diverse range of opportunities to learn through technological gadgets and entertain themselves (Duan et al., 2020; Janning, 2020; Kim & Padilla, 2020; King et al., 2020; Pan et al., 2020; Wiederhold, 2020). It is true to say that 21st century is the era of technology and scientific innovation, where the technology is profoundly involved and highly influenced the lives of children especially at their early ages. For instance, Drouin et al. (2020) carried out a study in the context of United States which reported that, 85% of children from 0-5 years of age used technology. Nonetheless, there is a dearth of research on the extent to which male and female children in Pakistan, and Gilgit, GB specifically, were exposed to a wide variety of technical devices and how their parents supervised them while using them. The goal of this study is to contribute to the body of literature from the area by addressing this research problem.

Literature Review

Studies in other cultural settings revealed that children in their early age/grade levels are exposed with technology and it is used for different purposes in their lives (Gradisar et al., 2013). In a situation like Covid-19 lockdown that has created more spaces for children, around the globe, to remain engaged with technology at most of their time at their homes. This new trend has directly or indirectly influenced the child's cognitive, moral/social, psychological and physical development etc. regarding their level of exposure with technological gadgets (Dong et al., 2020). To this end, the influence of family structure on children is yet another important factor that influence children level of exposure with technological gadgets (Jiang & Monk, 2016) and the purpose of its usage.

In the context of GB, the people culturally used to prefer living in joint families and even in extended families for many reasons (Amir et al., 2013). In some family structures (i.e., nuclear, joint and extended family) use of technology is limited whereas in other cases it is at higher level. For example, studies argued that children who use gadgets for more than 4 hours a day become technology addicted and they tend to express negative behavior in normal life (Suhana, 2017; Qutoshi et al, 2021). This depends

upon what are the opportunities available for children to access and use technology at home.

In a western context, Rideout (2014) conducted a survey and found that 75% of American kids at age 8 have easy access to Internet and have social media accounts and are utilizing Internet to watch videos and games. Similarly, Meyer (2010) identified in his study that 72% of children use the portable gadgets for playing games and watching cartoons and do not take interest in formal ways of learning through books. Likewise, Rowan (2009) found that 29% of the total children can use gadgets without any difficulty and 70% of them are super active in using gadgets in their early ages. However, Wiederhold (2020) and Qutoshi et al (2021) confirmed that children who are using technological gadgets more than 4-5 times a day are addicted to these gadgets that have a negative impact on children.

Similarly, other studies revealed that children who use different gadgets in the absence of their guardian's supervision grow with some psychosocial problems such as violence in their nature and depression in their lives. Moreover, other consequences of high dependency and continuous engagement with these devices include less attentiveness, superfluous action, becoming shy, forlornness/dissuasion, absence of motor control, social comfort, eye site issues, social and emotional problems and long-lasting impacts on the child development (Mehra, 2019).

However, Kaynar et al., (2020) identified that technological gadgets also improve the arithmetic abilities, like numeracy, aptitudes, tallying and distinguishing shapes among primary school children. Thus, technology has opened new opportunities of learning for children to be creative and now they can share content through online journals, animations, videos and photos all of which help engage children to build up their own skills of innovativeness and uniqueness in schools (Shenoy et al., 2020). Furthermore, children are making new substances, modifying old substances and connecting new progressive inventive plans to get a message and share with others for many purposes including socialization etc. (Roberts et al., 2005; Qutoshi et al, 2020).

In the context of Pakistan Qutoshi, Ali, and Khan (2021) conducted a quantitative study on use of technological gadgets and its effects on children which revealed that during covid-19 technology was used at the extreme level reported by 92% parents. Moreover, 93% of parents believed that technological gadgets have positive effects on children whereas 88% of parents believed that excessive use of technological gadgets can be harmful to children.

In the context of GB, it is observed that children, during covid-19 lockdown period, extensively used technological gadgets in complex environmental settings at home. In this cultural setting, children live in a nuclear family (husband and wife with their own children if any), joint family (in addition to nuclear family such as husband's brothers' family and/or their parents etc.), and extended family structure (joint families with their cousins and their families living together and in some cases with their grand parents and their cousins etc.). There are many influences of such a family structure on children, including the use of technology, which has been reported by the researchers in other parts of the world (Jiang & Monk, 2016).

In these contexts, the usage of technological gadgets is now becoming a trend (Janning, 2020) and a routine practice for children at home as they are willingly or unwillingly exposed to these technological devices. Studies (Suler, 2011; Young, 2009; Bell, 2014) reported that children at early ages become exposed with computerized and technological gadgets even before they are exposed to books and other print materials where these devices are available and accessible to children. However, Covid-19 pandemic lockdown at home created an opportunity for children to access these devices abundantly and enabled them to entertain themselves and learn new things related to their curriculum, interest, and exposure etc.

There are limited studies in Pakistani context regarding the use of technology by children when it comes to gender and family structure. Therefore, in the context of GB, the exposure of children with the technological gadgets was an area yet to be explored. Here exposure means the children's access to technological devices who have basic knowledge and skills to use them. These children (i.e. the exposed ones) use the devices independently and/or with the help of their siblings, and/or elders including parents etc. Therefore, this study intended to investigate to what extent children were exposed with technological gadgets and what is the relationship of using these devices with specific reference to their gender, age/grade level, and their family structure through parental perspectives.

Objectives of the Study

The main objective of the study was to investigate the children's exposure with the technological gadgets and its relationship with gender, age/grade level, and family structure from the parents' perspective in the

context of GB, Pakistan during COVID-19 Pandemic lockdown. Specifically, this study focuses on the following objectives:

- To investigate children's exposure with technological gadgets with reference to their grade/age group, time they spent with the technology, and family structure during Covid-19 Pandemic lockdown.
- To investigate the difference between boys' and girls' exposure with technological gadgets.
- To find types of technological gadgets the children were exposed to during Covid-19 Pandemic lockdown; and
- To investigate whether parents supervise their children while using technological gadgets.

This research study focuses on the following research questions.

- What was children's exposure with technological gadgets with reference to (i) their grade/ age group, time spent with the technological gadgets, and their family structure during Covid-19 Pandemic lockdown?
- Is there any significant difference between boys' and girls' exposure with technological gadgets during COVID-19 Pandemic lockdown?
- What types of technological gadgets that the children were exposed during Covid-19 Pandemic lockdown?
- What was the parents' point of view regarding their supervision of children while they use technological gadgets at home?

Methodology

This study was quantitative in nature. By using a self-structured questionnaire, as data collection tool the researchers collected data from 150 parents from district Gilgit of Gilgit-Baltistan, Pakistan. For this study, a group of 150 teachers as research participants selected purposefully (who were also parents having children from 0-12 years) who came from all over district Gilgit to participate in a teacher training program arranged by a local NGO. Among 150 teachers, 99 were male and 51 were female. Keeping ethical consideration in mind, an informed consent was obtained from all respondents before starting the process of data collection. Respondents were briefed about the purpose of research and clearly informed them regarding privacy and confidentiality.

The questionnaire consisted of two parts; the first part was about participants' demographic information and the second part was about participants' views about the age, gender, education level of parents,

child's exposure with the technological gadgets, family structure, and parental supervision while using technology by their children during COVID -19 pandemic lockdown in GB, Pakistan. For data analysis, the Statistical Package for Social Sciences SPSS 21 was used as a data analysis tool. Both Descriptive statistics and independent sample t-test were applied as the data analysis techniques were used.

Results

Children' exposure with the technological gadget with reference to gender, age/grade, family structure, and type of gadget

The results informed that among 150 children, who were exposed to technological gadgets, 70.7% were boys and 28.7% were girls (Table 1.1). According to table 1.2, 42% of 8-12 years old children (upper primary level) are more engaged with the technology. Whereas 40% 3-8 years old (at ECD level) and 18% children of 0-3 years of age (at informed parents program level) were also engaged with the technology respectively.

Table 1.1

Gender of child

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	106	70.7	70.7	70.7
	Female	43	28.7	28.7	99.3
	Other	1	.7	.7	100.0
	Total	150	100.0	100.0	

Table 1.2

Age group more engaged with technology

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	00-03 years	27	18.0	18.0	18.0
	03-08 years	60	40.0	40.0	58.0
	08-12 years	63	42.0	42.0	100.0
	Total	150	100.0	100.0	

With regard to the family structure, table 1.3 showed that 55.3% children belong to joint family structure whereas 38.7% children belong to nuclear family and only 6% belong to extended family. Table 1.4 reported that mostly children use mobile phone (39.3%) and computer/

laptop (39.3%) followed by TV (16.7%) and 3.3% children use tablets or e-readers.

Table 1.3

Family structure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nuclear	58	38.7	38.7	38.7
	Joint	83	55.3	55.3	94.0
	Extended	9	6.0	6.0	100.0
	Total	150	100.0	100.0	

Table 1.4

Technological gadgets children use mostly

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Mobile	59	39.3	39.3	39.3
	Computer/Laptop	59	39.3	39.3	78.7
	TV	25	16.7	16.7	95.3
	Tablets/E-Readers	5	3.3	3.3	98.7
	Any other	2	1.3	1.3	100.0
	Total	150	100.0	100.0	

With regard to level of engagement of children with the technological gadgets in terms of time, table 1.5 showed that 41.3 % children used technological gadgets for 2-3 hours daily during COVID-19 whereas 24.7% children used the gadgets for 1-2 hours and 18% children used technological gadgets for more than four hours.

Table 1.5

How many hours do your child spend with technological gadgets on daily basis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	00 to 01	12	8.0	8.0	8.0
	01 to 02	37	24.7	24.7	32.7
	02 to 03	62	41.3	41.3	74.0
	04	12	8.0	8.0	82.0
	Above 04	27	18.0	18.0	100.0
	Total	150	100.0	100.0	

Table 1.6*Does anyone supervise your child while engagement with gadget*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	88	58.7	58.7	58.7
	No	62	41.3	41.3	100.0
	Total	150	100.0	100.0	

With regard to the question 'does anyone supervise your child while engagement with gadgets?' 58.7% parents said Yes whereas 41.3% parents none supervise their children whole using technological gadgets.

With regard to the gender difference regarding usage of technological devices, an independent sampled t test was conducted. Table 1.7 showed there was no significant difference in the usage of technological devices for boys (M=17.56, S.D= 2.91) and girls (M=17.29, SD=2.75), conditions; $t(112) = 0.525$, $p = .60$. These results suggested that boys and girls used technological devices during equally.

Table 1.7a*Group Statistics*

	Gender of child	N	Mean	Std. Deviation	Std. Error Mean
Child_Familiarity	Male	106	17.5755	2.76008	.26808
	Female	43	17.4419	2.85609	.43555

Table 1.7b*Independent Samples Test*

		Levene's Test for Equality of Variances						
		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Child_Familiarity	Equal variances assumed	.023	.878	.265	147	.791	.13361	.50405
	Unequal variances							

Equal variance	.261	75.5	.795	.13361	.51144
s not assumed		16			

Table 1.7 showed that there is no significant difference between the point of male and female parents about the effects of technology on children.

Table 1.7
Independent Samples Test

	Gender	Equal variances assumed	N	F	Sig.	t	df	Levene's Test for Equality of Variances	t-test for Equality of Means	Std. Deviation
								Sig.	t	
Using technological gadgets is beneficial for children	Male	Equal variances assumed	99	.010	.920	.76	148	.446	3.74	0.83
	Female	Equal variances not assumed	51			.76	99.02	.450	3.63	0.85
My child is learning sounds, speaking, reading and writing skills etc. through technological gadgets.	Male	Equal variances assumed	99	.013	.908	.76	148	.448	3.97	0.95
	Female	Equal variances not assumed	51			.75	97.95	.454	3.84	0.99
Technological gadgets improve my child's arithmetic, science	Male	Equal variances assumed	99	.294	.589	.25	148	.805	3.69	0.94
	Female	Equal variances not assumed	51			.25	104.139	.803	3.65	0.91

and general knowledge etc.											
My child improves his/her grades by using technological gadgets.	Male	Equal variances assumed	99	.647	.422	-1.40	148	.164	3.09	1.05	
	Female	Equal variances not assumed	51			-1.47	114.75	.145	3.33	0.91	
Excessive use of technological gadgets are harmful for children and create imbalance in sleep.	Male	Equal variances assumed	99	.006	.936	.82	148	.412	3.74	1.18	
	Female	Equal variances not assumed	51			.82	99.53	.415	3.57	1.20	
Excessive use of gadgets reduces academic activities like reading a book and creative writing etc.	Male	Equal variances assumed	99	1.324	.252	1.69	148	.094	4.03	0.96	
	Female	Equal variances not assumed	51			1.66	96.40	.101	3.75	1.02	
My child becomes violent/aggressive when his/her gadget is taken away from him.	Male	Equal variances assumed	99	1.324	.252	1.69	148	.094	4.03	0.96	
	Female	Equal variances not assumed	51			1.66	96.40	.101	3.75	1.02	
Excessive use of technological	Male	Equal variances assumed	99	1.324	.252	1.69	148	.094	4.03	0.96	

gadgets reduces eyesight, physical activity, and increases pain in body etc. During covid-19 lockdown the usage of gadgets become at extreme level among children. The technological gadgets have addicted children now.	Female	Equal variances not assumed	51			1.66	96.40	.101	3.75	1.02
	Male	Equal variances assumed	99	1.324	.252	1.69	148	.094	4.03	0.96
	Female	Equal variances not assumed	51			1.66	96.40	.101	3.75	1.02
	Male	Equal variances assumed	99	1.942	.166	1.26	148	.210	3.73	0.98
	Female	Equal variances not assumed	51			1.23	95.24	.221	3.51	1.05

Discussions

The current study intended to examine children's exposure with the technological gadgets with reference to gender, age/grade level, family structure, and types of technological devices. From the results, it is clear that boys were more exposed with technological gadgets (i.e., 70.7%) as compare to girls (i.e., 28%) during Covid-19 pandemic lockdown period. Regarding age group, the data revealed that 42% of children of age group 8-12 are more engaged with the technological gadgets followed by 40% of 3-8 years of age group. This shows that there was a majority of boys as compare to girls who were reported about their engagement with technological gadgets. This finding is in accordance with the literature. For example, Ofcome (2019) reported that in the United Kingdom, 52% of 3-4 years old and 82% of 5-7 year olds are connected to the technological devices. However, in the existing literature, it was not clearly highlighted that which age level was more exposed to technological gadgets in general and during covid-19 pandemic in particular in the context of GB, Pakistan. This clearly shows that this study to some extent has contributed to fill this gap in the existing literature.

Moreover, a majority of the children (55.3%) belonged to joint family and (38.7%) to nuclear family. This shows that there are more children in joint family and nuclear family structure as compare to extended families. We can infer that nuclear families are emerging in current situation as compare to our cultural norms which mostly prefer to live in joint and extend families (Amir et al., 2013). To this end, family structure in the context of GB may have a strong influence but the current study does not show any such influence of family structure on use of technological devices. However, studies in other countries context argued that family structure have a great influence on children' use of technology at home (Jiang & Monk, 2016).

Mostly children use mobile and laptop/ computers (39.3%) whereas only 16.7% children use TV in Gilgit. This finding contradicts with the literature for instance OECD (2019) reported that among technological gadgets, majority of children from 3-15 years of age mostly use TV in UK. Moreover, a few studies in America reported that 75% of American kids at age 8 have easy access to internet and have social media to watch videos and games (Becker, 2000). This means that there are no studies conducted in the context, even in the west, about which age/grade level in early years are more exposed to technological gadgets during Covid-19 lockdown period. Therefore, these findings would help future researchers to build on exploring more about exposure of children across gender and age/grade level, and the reasons behind their engagement with technological tools.

It was revealed that mostly parents (58.7%) supervise when their children use technological devices whereas 41.3% parents don't supervise when their children are engaged with the technological devices. This finding is in accordance with the study of Home (2020) which reported that children at upper primary use internet and tend to possess their own gadgets to use technology freely without any supervision.

Recommendations

Based on the findings of the study, few recommendations were made for parents, school teachers, and future researchers. For instance, it is recommended that parents or any other adult/ caregiver should supervise or assist their children while they use technology. It was assumed that there will be difference between children in joint/ extended families and nuclear families when it comes to using technological gadgets. However, this study didn't report any difference. It is recommended to carry out a research study in the future to investigate the family structure and use of technological device by increasing the sample. Furthermore, an extensive

study need to be done in other districts as well to get a real picture of usage of technological devices in GB in particular and Pakistan in general.

Conclusion

It is concluded from the study that children (boys and girls) were exposed with the technological gadgets in Gilgit. Majority of the children belong to joint family systems who were exposed to technological devices. It was identified that mostly children use computer/ laptop and cell phones. However, less children were found to be exposed with TV and other devices. Further, mostly parents supervise their children's' technology time. The study informed that there was no significant difference between male and female children across age group regarding the effects of using technological gadgets on children.

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