

A Cross Sectional Study on Relationship between Gadget Usage and Child's Development among Children in Klang Valley

Rania Roslan¹, Michellejeet Kaur A/P Amrik Singh²,
Ahmad Al Mukmin Bin Azhan³, Nurul Hanis Hanani Binti Ahmad Basri⁴,
Abdul Halim Shibghatullah⁵

^{1,2,3,4,5}Faculty of Medicine, University of Cyberjaya, Malaysia

Corresponding Author: Rania Roslan

DOI: <https://doi.org/10.52403/ijshr.20230326>

ABSTRACT

Background: The use of gadgets especially amongst children is rising exponentially across the globe. In today's day and age, children are natives to the world of Information and Technology which explains the unprecedented rise in the usage of gadgets amongst them. However, early gadget usage brings about both positive and negative impact on their development and we aim to understand and highlight these impacts.

Objectives: To assess the association between the duration of gadget usage and the development of children.

Material and Methods: A cross-sectional study was conducted among 368 parents with children age 2-5 years old in Klang Valley. The UNICEF ECDI 2030 was used as the collecting instrument. Data analysis was done by using Jeffrey's Amazing Statistics Program (JASP) with Multiple Logistic Regression as statistical test.

Results: Overall, there is a statistically significant association between the duration of gadget usage and the development of children.

Conclusion: Screen time significantly affects a child's development which warrants effort from parents to limit their screen time which can be achieved by implementing other habits and establishing a positive reinforcement technique.

Keywords: Gadget Usage, Children Development, Aged 2-5 years old, Klang Valley, Malaysia.

INTRODUCTION

A gadget is a small device or machine that serves a particular purpose and the use of gadgets is undoubtedly and inevitably rising across the globe. In the status quo, children are growing up as natives to the world of Information and Technology and as a repercussion, we are able to witness an unprecedented rise in the usage of gadgets amongst children [1]. A study conducted to investigate the use of mobile media devices in children showed that 96.6% of them started using mobile devices before the age of 1, by the age of 2, it became a daily routine and by 4 years of age, no assistance were required to explore the limitless boundaries of gadgets [2].

Early usage of gadgets has both positive and negative impacts. Technology, via the use of certain applications, contributes to the early development of certain cognitive abilities like listening, reading and writing in a child. Even children with learning disabilities like autism benefit from the use of gadgets as certain applications, for example, "VIREAL" helps to stimulate real-life scenarios in order to develop proper behavioral response [3]. With that being

said, the pitfalls of usage of gadgets in children have to be addressed as well. In a study conducted to understand the relationship between duration of playing gadgets and mental and emotional state of elementary students, it is found that negative impacts that come with prolonged and unsupervised usage are isolation and staggering of character development [4]. This study is done to assess the usage of gadgets among children, early development of children, the association between the sociodemographic of parents and children with the duration of gadget usage and the association between the duration of gadget usage and the development of children. Hence, this study aims to highlight and understand the impact of gadgets on Children's development amongst parents in Klang Valley. The mindset of parents on gadget usage and factors that contribute to that perception highly affects the usage of gadgets in children and subsequently the impact it imposes.

MATERIALS & METHODS

This is a cross-sectional study that was carried out among parents with children aged 2-5 years old in Klang Valley.

Only parents with children aged 2 to 5 years old who lives in Klang Valley and own any kinds of gadgets at home are eligible to participate in the study. Those with children that had been diagnosed with development impairment since birth are excluded from this study.

The data was collected using a convenient sampling method through a set of questionnaires which was distributed via online platforms. Participants are required to fill in the consent form prior to answering the questions. The dual language questionnaire comprised of 5 sections with Section C, D and E is from a validated questionnaire with 20 items from UNICEF Early Childhood Development Index 2030 (ECDI 2030) [5] which assess the children's development. Children's development will be categorised by either on track or not on track.

Data analysis is done by using Jeffrey's Amazing Statistic Program (JASP) with Multiple Logistic Regression is used as statistical test.

RESULT

A total of 368 respondents participated in our study with a response rate of 99.7%.

Table 1: Usage of gadget

| Usage of gadget | | Frequency (n) | Percentage (%) |
|---|---|---------------|----------------|
| Gadgets available at home | Television | 297 | 80.71 |
| | Smartphone | 335 | 91.03 |
| | Tablet | 212 | 57.61 |
| | Game device | 85 | 23.10 |
| | Others | 9 | 2.45 |
| Gadget used the most by the child | Television | 75 | 20.38 |
| | Smartphone | 176 | 47.83 |
| | Tablet | 91 | 24.73 |
| | Game device | 17 | 4.62 |
| | Others | 5 | 1.26 |
| Gadget owned by the child | Yes | 129 | 35.05 |
| | No | 239 | 64.95 |
| Number of hours the child uses the gadget | Never used gadget before and less than 1 hour | 110 | 29.89 |
| | 1 hour and more | 258 | 70.11 |
| Age the child was exposed to gadget | Never use gadget before | 4 | 1.09 |
| | Less than 1 year old | 87 | 23.64 |
| | 1 year old | 146 | 39.67 |
| | 2 years old | 100 | 27.17 |
| | 3 years old | 21 | 5.71 |
| | 4 years old | 6 | 1.63 |
| Purpose of the child using gadget | 5 years old | 4 | 1.09 |
| | Education | 253 | 68.75 |
| | Cartoon | 299 | 81.25 |
| | Game | 155 | 42.12 |

| | | | |
|---|---------------|-----|-------|
| | Music | 141 | 38.31 |
| | Communication | 74 | 20.12 |
| The child is allowed to use gadget without supervision | Yes | 147 | 39.95 |
| | No | 221 | 60.05 |
| 'Parental supervision' application is installed on the gadget used by the child | Yes | 144 | 39.13 |
| | No | 224 | 60.87 |

Table 1 shows the majority of the respondents have television (80.71%), smartphones (91.03%) and tablet (57.61%) at home. Majority of the respondents' children (47.83%) use smartphones the most. More than half of the respondents' children (64.95%) do not own a gadget. Most respondents (70.11%) agree that their children spend 1 hour and more on gadgets. 39.67% of the respondents' children were exposed to gadgets at the age of 1 year old. More than half of the respondents agree that the purpose of their children using the gadget are for education (68.75%) and cartoons (81.25%). This study also reveals

that more than half of the parents (60.05%) do not allow their children to use gadget without supervision. Most respondents (60.87%) did not install the 'parental supervision' application on the gadget used by their children.

Table 2: Development of Children Aged 2-5 years in Klang Valley

| Child's Development | Frequency (n) | Percentage (%) |
|---------------------|---------------|----------------|
| On track | 282 | 76.63 |
| Not on track | 86 | 28.82 |

Table 2 reveals that the development of 28.82% of the respondent's children aged 2-5 years old is not on track.

Table 3: The association between sociodemographic factors of parents and gadget usage among children

| Sociodemographic factors | | Duration of time of gadget usage by the child | | Total n (%) | Statistical test | |
|--|---------------------------------------|---|-----------------|-------------|--------------------------|---------|
| | | No usage at all and less than 1 hour | 1 hour and more | | Odds Ratio (OR) (95% CI) | P-value |
| | | | | | | |
| Gender | Male | 48 (30.57) | 109 (69.43) | 157 (100) | 1.000 | - |
| | Female | 62 (29.38) | 149 (70.62) | 211 (100) | 1.058 (0.674-1.661) | 0.805 |
| Age | 18-27 | 33 (33.67) | 65 (66.32) | 98 (100) | 1.000 | - |
| | 28-37 | 70 (30.04) | 163 (69.96) | 233 (100) | 1.182 (0.714-1.957) | 0.515 |
| | 38 and more | 7 (18.92) | 30 (81.08) | 37 (100) | 2.176 (0.864-5.477) | 0.099 |
| Ethnicity | Chinese | 25 (33.78) | 49 (66.22) | 74 (100) | 1.000 | - |
| | Malay | 54 (27.27) | 144 (72.73) | 198 (100) | 1.361 (0.766-2.416) | 0.293 |
| | Indian | 20 (33.33) | 40 (66.67) | 60 (100) | 1.020 (0.496-2.099) | 0.956 |
| | Others | 11 (30.56) | 25 (69.44) | 36 (100) | 1.160 (0.492-2.733) | 0.735 |
| Educational level | Secondary level | 37 (42.53) | 50 (57.47) | 87 (100) | 1.000 | - |
| | No formal education and primary level | 7 (38.89) | 11 (61.11) | 18 (100) | 1.163 (0.412-3.285) | 0.776 |
| | Tertiary level | 66 (25.09) | 197 (74.91) | 263 (100) | 3.056 (1.329-3.672) | 0.002 |
| Occupation | Housewife | 32 (50.00) | 32 (50.00) | 64 (100) | 1.000 | - |
| | Government | 20 (23.81) | 64 (76.19) | 84 (100) | 3.200 (1.587-6.454) | 0.001 |
| | Private | 34 (29.57) | 81 (70.43) | 115 (100) | 2.382 (1.265-4.486) | 0.007 |
| | Unemployed | 3 (23.08) | 10 (76.92) | 13 (100) | 3.333 (0.838-13.251) | 0.087 |
| | Self-employed | 19 (21.84) | 68 (78.16) | 87 (100) | 3.579 (1.766-7.252) | <0.001 |
| | Others | 2 (50.00) | 3 (50.00) | 5 (100) | 1.500 (0.235-9.588) | 0.668 |
| Marital status | Single | 5 (31.25) | 11 (68.75) | 16 (100) | 1.000 | - |
| | Married | 100 (30.12) | 232 (69.88) | 332 (100) | 1.055 (0.357-3.114) | 0.923 |
| | Divorcee/widow | 5 (25.00) | 15 (75.00) | 20 (100) | 1.364 (0.316-5.892) | 0.678 |
| Total number of children | 1 | 55 (36.91) | 94 (63.09) | 149 (100) | 1.000 | - |
| | 2 | 31 (25.62) | 90 (74.38) | 121 (100) | 1.699 (1.003-2.876) | 0.049 |
| | 3 and more | 24 (24.49) | 74 (75.51) | 98 (100) | 1.804 (1.022-3.184) | 0.042 |
| Total number of children 5 years old and under | 1 | 89 (30.48) | 203 (69.52) | 292 (100) | 1.000 | - |
| | 2 | 19 (27.54) | 50 (72.46) | 69 (100) | 1.154 | 0.631 |
| | 3 and more | 2 (28.57) | 5 (71.43) | 7 (100) | 1.096 | 0.914 |

Table 3 shows there is a statistically significant association between parents' education level and duration of gadget usage where parents with tertiary level of education are three times more likely to allow their children to use gadgets for 1 hour and more compared to secondary level of education (OR :3.056, 95% CI: 1.329-3.672, p-value: 0.002). There is also a statistically significant association between parents' occupation and duration of gadget usage. Parents that are working in the government sector are three times more likely to allow their children use gadgets for 1 hour and more (OR: 3.200, 95% CI: 1.587-6.454, p-value: 0.001) while those in private sector are twice more likely to allow their children use gadgets for 1 hour and

more (OR: 2.382, 95% CI: 1.265-4.486, p-value: 0.007) compared to housewife respectively. Parents who are self-employed are 4 times more likely to allow their children use gadgets for 1 hour and more compared to housewives (OR:3.579, 95%CI: 1.766-7.252, p-value: <0.001). This study also reveals there is a statistically significant association between total number of children and duration of gadget usage where parents with two children (OR:1.699, 95%CI:1.003-2.876, p-value:0.049) and 3 and more children (OR:1.804, 95%CI: 1.022-3.184, p-value: 0.042) are twice more likely to allow their children to use gadget for 1 hour and more compared to parents with one child.

Table 4: The association between sociodemographic factors of child and gadget usage among children

| Sociodemographic factors | | Duration of time of gadget usage by the child | | Total n (%) | Statistical test | |
|--------------------------------|--------------|---|-----------------|-------------|--------------------------|---------|
| | | No usage at all and less than 1 hour | 1 hour and more | | Odds Ratio (OR) (95% CI) | P-value |
| | | n (%) | n (%) | | | |
| Gender | Male | 60 (30.46) | 137 (69.54) | 197 (100) | 1.000 | - |
| | Female | 50 (29.24) | 121 (70.76) | 171 (100) | 1.060 (0.677-1.659) | 0.799 |
| Age | 24-29 months | 38 (39.18) | 59 (60.83) | 97 (100) | 1.000 | - |
| | 30-35 months | 25 (35.21) | 46 (64.79) | 71 (100) | 1.185 (0.628-2.237) | 0.600 |
| | 36-41 months | 16 (22.22) | 56 (77.79) | 72 (100) | 2.254 (1.132-4.490) | 0.021 |
| | 42-47 months | 19 (34.55) | 36 (65.46) | 55 (100) | 1.220 (0.613-2.431) | 0.571 |
| | 48-59 months | 12 (16.44) | 61 (83.56) | 73 (100) | 3.274 (1.560-6.870) | 0.002 |
| Attending nursery or preschool | No | 66 (34.90) | 123 | 189 (100) | 1.000 | - |
| | Yes | 44 (24.58) | 135 (75.42) | 179 (100) | 1.646 (1.047-2.590) | 0.031 |

Table 4 showed there is a statistically significant association between the age of child and duration of gadget usage. Children aged 36-41 months are twice more likely to spend 1 hour and 1 more on gadgets compared to children aged 24-29 months (OR:2.254, 95%CI: 1.132-4.490, p-value:0.021). Children aged 48-59 months old are three times more likely to spend 1 hour and more on gadgets compared to

children aged 24-29 months (OR: 3.274, 95% CI: 1.560-6.870, p-value: 0.002). It is shown that there is a statistically significant association between attending nursery or pre-school to duration of gadget usage. Children aged 2-5 years old that attended nursery school are 64% more likely to spend 1 hour or more on gadgets (OR 1.646, 95% CI 1.047,2.590, P-value 0.003).

Table 5: The association between gadget usage and children development

| Gadget usage | Child development | | Total n (%) | Statistical test | |
|--------------------------------------|-------------------|--------------------|-------------|--------------------------|---------|
| | On track n (%) | Not on track n (%) | | Odds Ratio (OR) (95% CI) | P-value |
| No usage at all and less than 1 hour | 96 (87.27) | 14 (12.73) | 110 (100) | 1.000 | - |
| 1 hour and more | 186 (72.09) | 72 (27.91) | 259 (100) | 2.654 (1.423-4.950) | 0.002 |

Table 5 shows children with gadget usage of 1 hour and more are significantly 3 times more likely to have not on track development compared to those who have never used a gadget or use it less than 1 hour (OR: 2.654,95% CI :1.423 - 4.950), p-value: 0.002).

DISCUSSION

Our first objective was to study the usage of gadgets among children in Klang Valley. According to our study, the majority of respondents have television (80.71%) and smartphone (91.03%) available at home. Our findings is supported by a research done in Malaysia to study the trends of gadget usage and its relationship with psychosocial adjustment among pre-schoolers in Malaysia, where it was found that the most common (88.3%) device available at home was smartphones [6]. These findings were predicted as in highly urbanised areas like Klang Valley, it is expected for most parents/families to own some sort of gadgets at home.

Based on our study, the gadget used the most by children is smartphone (47.83%). This result is supported by a study done, which found that the majority of the children used smartphones and televisions for 86.5% and 83.9% respectively [7]. Smartphones are extremely convenient to use, pocket friendly and readily accessible, which explains the findings of our study.

Our study also revealed that the majority of the respondent's children (64.95%) do not own any gadget. This is backed up by research done in Malaysia where it was found that only 15% of respondents reported buying their children very own gadget before the age of 12^[8]. It can be concluded that most children age 3-5 do not own any gadgets.

According to our research, most of respondent's children use gadgets for 1 hour and more (70.11%). This outcome is supported by study in Universitas Indonesia Maju where 38.2% of respondent's children are playing gadgets for regular time (1 hour to 2 hours per day) and 38.2% of them are playing gadget for a long time (more than 2 hours per day) ^[9]. It can be concluded that the majority use gadgets for 1 hour or more. Based on our study, the majority of respondents (39.67%) allow their children to be exposed to gadgets at the age of 1 year old. This result is supported by the study on excessive gadget exposure and children speech delay, which found that 57% of children had their first contact with gadgets at 1-2 years old^[10]. A possible reason for this finding could be the rampant use of gadgets by parents to settle unavoidable and prevalent temperamental issues of their child.

As observed in our study, 81.25% of the respondent's children use gadgets for the purpose of watching cartoons. This finding is in line with a study where it reveals that majority of participants (39%) used gadgets for watching cartoons or movies, followed by social media (27%) and video games (17%)^[11].

Our study showed that 60.05% of respondents do not allow their child to use gadget without supervision. This is supported by study from Indonesia on the role of parents in assisting the use of gadget in alpha generation, where it was found that 86% of parents accompany their children while using gadget^[12].

Based on our study, 60.87% of the respondents do not have a 'parental supervision' application installed on gadgets used by their children. This finding can be backed up by study done in Indonesia on discovery of parents' intention factors in the

use of parental control on the gadgets used by their children, where it reveals that more than 50% never use parental control despite knowing about it [13]. A very high possibility for this occurrence could be the lack of awareness and education on systems like parental control to ensure appropriate viewing content.

Based on our study, a minority (28.82%) of the respondents' children did not have their development on track. This result is supported by a study conducted on effects of gadgets usage on child development in Indonesia, where 31.0% of the children aged 3-5 years had inappropriate development. This may be due to lack of parental supervision or co-viewing of media with adults as highlighted that co-viewing of educational media improves children's vocabulary [14]. This shows that gadget usage itself is not harmful, if done with appropriate mitigating factors taken into consideration.

Our study explored the impact of various sociodemographic factors of the parents of the children aged 2-5 years on gadget usage where it was concluded that education level, total number of children and occupation of the parents had significant finding(s). It was shown from our study that parents with tertiary education level are significantly associated with children's screen time of 1 hour and more (p value = 0.002). Our finding was supported by research that was done in Bangladesh to study the prevalence and impact of the use of electronic gadgets on the health of children in secondary school, where it was found that >93% of the participants whose parents were tertiary level graduates were found using gadgets [11]. A possible reason for this could be the financial stability of parents with tertiary level education to be able to afford a myriad

of gadgets and their widespread awareness of different usage of gadgets.

Based on our study, having a total number of children of ≥ 2 significantly associated with children spending 1 hour and more on gadgets. This finding is supported by a study which found that child development was directly and negatively affected by families who had a total number of children of >2 [15] ($b = -2.48$, 95% CI = -3.67 to -1.29; $p < 0.001$). A possibility for this occurrence could be the lack of individual attention given to children who are part of larger families.

In our study, it is also shown that parent's occupations, especially government servants, private and self-employed, significantly impact the duration of gadgets usage among children. This is supported by a study conducted in Nigeria where it was found that there is significant influence of mobile phone usage on academic performance among senior secondary school students with different parent's occupation [16]. However, on the contrary, there is a study done which found that a parent's occupation was not statistically supported to have a positive influence over a child's screen time [17] ($b = 0.109$, $p = 0.131$). The disparity in the results could be highly due to different demographics of the sample participants.

Our study examined the impact of various sociodemographic factors of the children on gadget usage, and interestingly the significant findings were the age of the children and those children who attended nursery school. We found that children aged 36-41 months and 48-59 months were two times more likely and three times more likely respectively to spend 1 hour and more on gadgets. Our findings are in line with another study conducted in Saudi amongst children aged 6-12 years where a significant

relationship was established between technology consumption time and the child's age^[18] (p value < 0.05).

Besides that, our study has also shown that there is statistically significant association between children aged 2-5 years who attended nursery school and their gadget usage. Those children who attended nursery school are 64% more likely to spend 1 hour or more on gadget (p value = 0.003). This finding is supported by research conducted in India to study the prevalence of excessive screen time and its association with developmental delay in children aged <5 years where there was a statistically significant association found between excessive screen time and children aged ≥ 2 years attending school^[19].

The crowning point of this study is the strong statistical association between hours of gadget usage and the development of the child. Our findings showed that children with gadget usage of 1 hour and more are 3 times more likely to have not on track development compared to those who have never used a gadget or use it less than 1 hour. Notably, this is in line with a study where it was concluded that child development is directly and negatively affected by gadget usage^[15] (b = -2.74, 95% CI: -3.99 - -1.49; p-value<0.001). This is further supported by research conducted where it was found that children with excessive screen time of >2 hours had parental concerns in communication, problem-solving, and personal-social development^[20].

The significance of this research is that it serves as an eye opener to current and future parents in order to avoid certain detrimental effects on a child's development due to excessive gadget usage in the long run. Understanding the association between a myriad of factors and gadget usage might be

able to help society understand certain factors that play a huge role when it comes to the impact of gadget usage in children. Awareness on this matter has been long overdue and this research was done to curb that issue.

The possible limitations of this study include biases such as recall bias and response bias. Aside from that, we would like to highlight that our sample population may not be the most accurate representation of the entire population of parents in the country which may warrant and encourage future studies or researchers to focus on an exact representation of the population with regards to this issue.

Some recommendations that could be offered to help mitigate this issue include imposing a limit or restriction for the duration of contact with the gadgets for a child. Other activities or habits may also be implemented in the household, such as reading an interactive book or playing board games, as a replacement for screen time.

CONCLUSION

To conclude, gadget usage is highly prevalent amongst children these days and it is evident from our research that screen time significantly affects a child's development. This warrants effort from the parents to limit their screen time and to put into practice the methods to limit screen time and monitor their gadget usage.

Declaration by Authors

Ethical Approval: Approved

Acknowledgement: We would like to express our sincere gratitude and appreciation to our supervisor and lecturers for their guidance and constructive feedback in conducting and structuring this research and report. We also would like to convey

our genuine appreciation to all participants who took part in this study.

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Hazalifah H, Alexander L. Trends of Gadget Use and Psychosocial Adjustment in Pre-schoolers. *International Journal of Early Childhood Education Care*. 2018; Vol 8:14-23.
2. Kabali, HK, Matilde MI, Rosemary ND, Jennifer GB, Sweta HM, Kristin PL, Robert LB. Exposure and Use of Mobile Media Devices by Young Children. *Pediatrics*. 2015; 136(6):1044–1050.
3. Zuraina A, Ahmad M, Nurul A, Khairun N, Kasturi S. A preliminary study on the uses of gadgets among children for learning purposes. *Journal of Physics: Conference Series*. 2020.
4. Arlinda S, Ferdinan B, Mudia A, Ivana A, Nerdy N. 2019. The Relationship between the Duration of Playing Gadget and Mental Emotional State of Elementary School Students. *Open Access Macedonian Journal of Medical Sciences*. 2019; 7(1):148-151.
5. Early Childhood Development Index 2030. [Internet]. 2023 [updated May 2023; cited 2023 July 26]. Available from <https://data.unicef.org/resources/early-childhood-development-index-2030-ecdi2030/>
6. Hazalifah H, Alexander L. Gadget usage: Trends and its Relationship with Psychosocial Adjustment Among Pre-schoolers in Malaysia. *International Journal for Studies on Children, Women, Elderly, And Disabled*. 2018; Vol 5.
7. Azwanis A, Siti R, Edre M, Nurzulaikha A, Ramli M. Development and Validation of a New Gadget Addiction Scale (Screen Dependency Scale) among Preschool Children in Malaysia. *International Journal of Environmental Research and Public Health*. 2022; 19(24):16916.
8. Noorshahira M, Mohd Y, Mohd A. The Level of Tolerance Sanctioning Children Using Gadgets by Parents Lead To Nomophobia: Early Age Gadgets Exposure. *International Journal of Arts & Sciences*. 2016; 09(02):615-622.
9. Mareta A, Nur E, Hari G. The Duration of Playing Gadgets in Preschool Children is Related to the Level of Anxiety of Parents. *Integrated Nursing Journal*. 2022; 4(2).
10. Putra RA, Ashadi A, Aziz MF. Excessive Gadget Exposure and Children Speech Delay: The Case of Autism Spectrum Risk Factor. *Script Journal: Journal of Linguistic and English Teaching*. 2022; 7(1):176-195.
11. Rashid SMM, Mawah J, Banik E, et al. Prevalence and Impact of the Use of Electronic Gadgets on the Health of Children in Secondary Schools in Bangladesh: A Cross Sectional Study. *Health Science Reports*. 2021; 4:e388.
12. Ria NH, Ilga M. The Role of Parents in Assisting the Use of Gadget in Alpha Generation. *Proceedings of the SS9 & 3rd URICES*. 2019. Available from <https://ices.prosiding.unri.ac.id/index.php/ICES/article/view/7900/6812>
13. Paulus I, Riyanto J. Discovery of Parents' Intention Factors in the Use of Parental Control on the Gadgets Used by Their Children. *Journal of Theoretical and Applied Information Technology*. 2023;101(07).
14. Preeti GS, Rachel MF, Kevin MW. Coviewing Educational Media: Does Coviewing Help Low-Income Preschoolers Learn Auditory and Audiovisual Vocabulary Associations. *American Education Research Association*. 2019; 5(2).
15. Calorina L, Pawito P, Prasetya H. The effect of gadget use on child development: A path analysis evidence from Melawi, West Kalimantan. *Journal of Maternal and Child Health*. 2020;5(1):110-9.
16. Haruna R, Aisha IM, Yunusa U, Hadiza TA. Impact of Mobile Phone Usage on Academic Performance Among Secondary School Students in Taraba State, Nigeria. *European Scientific Journal*. 2016; 12(1).
17. Rahman SU, Farzana S. Role of Parents in Making Children's Use of Media Screen Time More Worthwhile. *Conference Paper*. 2019. Available from https://www.academia.edu/43080613/Role_of_Parents_in_Making_Childrens_Use_of_Media_Screen_Time_more_Worthwhile
18. Thekra A, Rifan A, Johara A, Ethar A, Eman A, Reem A. The Relationship Between Technology Use and Physical

- Activity among Typically-Developing Children. *Healthcare*. 2020; 8(488).
19. Samya V, Akila GV, Karthik NR, Muthukumar R, Murugesan K, Sathiasakaran BWC. Prevalence of Excessive Screen Time and its Association with Developmental Delay in Children <5 years: A Population-Based Cross-Sectional Study in India. *PLoS One*. 2021; 16(7):e0254102.
20. Anitha SA, Udayakumar N, Abhinayaa J, Nivetha J, Priyadharshini T. Association of Digital Media Exposure and Addiction with Child Development and Behavior: A Cross Sectional Study. *Industrial Psychiatry Journal*. 2021; 30(2):265-271.
- How to cite this article: Rania Roslan, Michellejeet Kaur A/P Amrik Singh, Ahmad Al Mukmin Bin Azhan, Nurul Hanis Hanani Binti Ahmad Basri, Abdul Halim Shibghatullah. A cross sectional study on relationship between gadget usage and child's development among children in Klang Valley. *International Journal of Science & Healthcare Research*. 2023; 8(3): 170-178. <https://doi.org/10.52403/ijshr.20230326>
