GADGET SCREEN TIME USE OF STUDENTS IN SELECTED TERTIARY INSTITUTIONS: IMPLICATIONS IN THE NEW NORMAL LEARNING

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Abstract: Since the advent of the pandemic, students exposed to gadgets were even more dependent than ever before. This study aims to analyze tertiary students' gadget screen time usage during the pandemic. The proponent used a descriptive research via online survey as the primary data gathering tool. The study subjected the gathered data to statistical treatment. Results show that students responded that it is "important" and they "agree" to reduce gadget screen time use. The students also "agree" on the context of expectations about screen time use, and they "often" observe a family model of screen time use in their households. Furthermore, significant differences were found in the attitude, self-efficacy, expectations, and family model of screen time use when grouped according to demographic profile. Finally, the proponent shared some implications at the end of the study.

Keywords: Attitudes, Self-efficacy, Gadgets, Screen time use, Tertiary students.

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INTRODUCTION

With the widespread impact of the pandemic, people turned their lives into different forms of mechanisms to adapt to the change. Although gadgets have already been part of our lives, during the pandemic, we cannot help but rely more than ever on them, especially among the students who depend on these apparatuses and even more due to lockdowns. As defined by an editorial article, screen time is the cumulative time that an individual spends looking at or watching the screen of a gadget (which includes but is not limited to television, video screens, computer, smartphones, video games, or tablets) (Anuradha, 2019). During the COVID-19 pandemic, there was a significant increase in screen time exposure. One study proved an increased knowledge about gadget addiction (Rafidah et al., 2022). The COVID-19 pandemic increased the use of the internet, which causes addiction among adolescents (Putri et al., 2022).

Different studies have shown that gadget screen time has varying degrees of importance and advantages as well as adverse effects and disadvantages to students. In general, the average screen time exposure for children and adults varies between 2 hours (Nair et al., 2022) to 5 hours (Aroob et al., 2021; Yeluri et al., 2021, Shahid et al., 2021; Othman et al., 2020). This time is more than one-fifth of an individual's 24-hour life expenditure. The mentioned average time can also vary depending on leisure, work, or studying activities.

Studies link gadget screen time exposure to different health concerns and conditions. For example, a study showed that gadget screen time affects sleep quality (Nair et al. 2022; Baby et al., 2021; Foo et al., 2021; Handayani et al., 2021; Amelia & Ramdani, 2019; Shanmugasundaram et al., 2019), as well as academic performance (Yeluri et al., 2021). In terms of screen time exposure among children with migraine, research linked it to internet addiction and more time on smartphones compared to healthy children (Gautam et al., 2022). Another study linked mobile screen time to elevated blood pressure (Nathania et al., 2022). In addition, screen time among children and adolescent leads to incidences of adiposity/ obesity (Handayani et al., 2021; Tripathi & Mishra, 2020) and eating difficulty (Yohana & Mulyono, 2021). There was also a link between screen time with nutritional status and the development of children (Maqfiro et al., 2021) and depression among university students (Aroob et al., 2021).

Some studies pertain to the role of the family in screen time exposure. For instance, a cross-sectional study revealed parental characteristics in their children's screen time (Koirala et al., 2021). Parents prefer more interactive online learning to facilitate learning (Lau & Lee, 2020). But in another study, parents of the students do not limit their screen time (West et al., 2021) which is quite a debate to consider. On the other hand, some parents accompany their children, especially when using their gadgets (Konca, 2021).

Too much screen time exposure also affects students' academic performance to some extent. However, studies showed that too much gadget exposure did not significantly impact academic achievement (Mabaroh & Sugianti, 2021; Raca et al., 2021). On the other hand, a group of investigators proved an association between academic achievement and time spent with the electronic gadget (Othman et al., 2020). Regardless of the circumstances, whether too much screen time affects academic performance positively or negatively, managing it will be a hassle for students.

Local studies in the Philippines also showed some exciting screen time usage among students. One, in particular, tackled the relationship between screen time usage and sleep management (Taguinod, 2022). In another study, researchers tried to find the association between the duration of gadget use and socio-emotional difficulties among students (Dizon et al., 2019). From a

different perspective, parents also set rules in screen time exposure and other management on misbehavior using digital technology (Paguirigan & Paguirigan, 2022). On average, millennials spend 3-4 hours daily on social media and gadgets (Delelis et al.,2018). It is noteworthy as well that not all students have the capacity to have devices like laptops or tablets for learning which is why they have higher levels of consequence-related COVID-19 anxiety (Cleofas & Rocha, 2021). From these few revelations from selected references, the impact of the COVID-19 pandemic on students was unpleasant and full of challenges and some drawbacks.

From the literature mentioned above, the study began delving into another perspective on how students in higher education institutions see themselves in dealing with screen time exposure. Therefore, this study's main objective is to analyze the gadget screen time use of students from selected higher education institutions in Central Luzon, Philippines. Specifically, it aims to determine the students' attitude, self-efficacy, expectations, and family model towards reducing screen time use.

The result of this study can become a basis for higher education institutions to manage students' exposure to gadgets and find alternative means to deliver learning in a less hazardous way until the pandemic subsides and everyday school life will return soon for the students.

METHODS

Design
This study employed descriptive survey research to achieve the main objectives of the study. A descriptive study intends to "describe" a particular event or characteristics of a sample for a specific population. With the help of an online survey via Google Form, the study gathered enough data for the analysis. Since the study intends to assess the screen time use of students in selected higher education institutions in Central Luzon, Philippines, the said research design is applicable.

Respondents
Three hundred nineteen (319) voluntary respondents participated in the said online survey. Since the data gathering was still during the pandemic, the research employed a convenience sampling technique to obtain enough respondents for the study. To be included in the survey, the following criteria must be met: a) should be a bona fide student studying in any recognized higher education institution in Central Luzon, Philippines; b) should be currently enrolled in the academic year of 2021-2022; c) should have a gadget (e.g., smartphone) with internet capability; and willing to participate in the survey.

Instrument
The study used a modified research questionnaire from the previous paper of Filho et al. in 2021, which comprises the different factors associated with screen time among students. The research questionnaire contained the following parts: a) Demographic Profile; b) Attitude Toward Reducing Gadget Screen Time Use; c) Self-Efficacy Toward Reducing Screen Time Use; d) Expectations of Screen Time Use, and e) Family Model Screen Time Use. Based on the previous study where the research questionnaire originated, the internal consistency of their instrument was between 0.70 to 0.85, which is already a good indication of their instrument's reliability.

Data Analysis
With the help of software, SPSS 23, the data gathered underwent analysis using the following statistical tools: frequency, percentage, mean, and Kruskal-Wallis. Before the actual analysis of the data, the study also performed a test of normality. After determining that the data were not normally distributed, the study employed a non-parametric test. The mentioned statistical tools decided on the descriptive and inferential statistics for the analysis to

assess the screen time use of the respondents.

RESULT

In this section, the research tries to provide vital information to attain the research objective, which is to assess the gadget screen time use of students in higher education institutions. The following tables below present the results of the study.

TABLE 1. *Demographic profiles of the respondents*

Profiles	f	%
Gender		
Male	104	32.60
Female	207	64.89
I prefer Not to say	8	2.51
Civil Status		
Single	309	96.86
Married	7	2.19
Prefer Not to say	3	0.95
Ave. Family Monthly Income		
Below 5,000 pesos		
5,000-15,000 pesos	106	33.23
16,000-25,000 pesos	134	42.01
26,000-35,000 pesos	57	17.87
36,000 pesos and above	13	4.08
	9	2.82
Course		
BEED	28	8.78
BSED	74	23.30
BSTM	37	11.60
BSHM	45	14.11
BSBA	29	9.09
BSA	28	8.78
BSCS	55	17.24
BAComm	7	2.19
BSN	13	4.08
Others	3	0.94
Year Level		
First Year	83	26.02
Second Year	123	38.56
Third Year	95	29.78
Fourth Year	18	5.64
GPA/ GWA		
Below 75%	2	0.63
76%-80%	14	4.39
81%-85%	54	16.93
86%-90%	129	40.44
91%-95%	96	30.09
96% above	11	3.45
No Response	13	4.08
Total	**319**	**100**

Table 1 shows the demographic profile of the student respondents. As seen from the table, more than 60 percent of the respondents were female. On the other hand, most of the respondents were still single regarding their civil status. More students have a monthly family income of 5,000-15,000 pesos. At the same time, more respondents took the Bachelor of Secondary Education (BSEd) course. More than one-third of the respondents were in the second-year level. Lastly, more students have a GPA/GWA of 86%-90%.

TABLE 2. *Attitude toward reducing gadget screen time use*

Statement	Mean	Interpretation
1	2.88	Important
2	2.58	Important
3	3.18	Important
Average Mean	**2.88**	**Important**

Legend: 1.00-1.49= Not Important; 1.50-2.49=A little Important; 2.50-3.49= Important; 3.50-4.00=Very Important

Table 2 shows the frequency of the responses and the mean computation from the study's survey to assess students' attitudes towards reducing gadget screen time use. As seen from the table, statements one, two, and three got a general response of "important," as implied in the study's frequency and mean distribution. This result suggests that students recognize the idea of limiting themselves in their exposure to their gadgets at the same as the advantages and disadvantages of using devices in learning and other leisure.

TABLE 3. *Self-efficacy toward reducing screen time use*

Statement	Mean	Interpretation
1	2.85	Agree
2	2.52	Agree
3	2.39	Disagree
4	2.76	Agree
5	2.50	Agree
6	2.31	Disagree
7	2.96	Agree
8	2.90	Agree
9	2.92	Agree
10	2.86	Agree
11	2.91	Agree
Average Mean	**2.72**	**Agree**

Legend: 1.00-1.49=Strongly Disagree; 1.50-2.49=Disagree; 2.50-3.49= Agree; 3.50-4.00=Strongly Agree

Table 3 displays the frequency and mean distribution of the students' responses regarding self-efficacy toward reducing screen time use. One can deduct from the presentation that items three (3) and six (6) generated scores with a "disagree" response among the students. The two entities also generated the lowest mean scores among the statements in the study. The rest of the accounts fall under the interpretation of "agree," so does the average mean of the study. This result means that in terms of students' self-efficacy, they rated themselves as efficient in reducing screen time use of their gadgets.

TABLE 4. *Expectations of screen time use*

Statement	Mean	Interpretation
1	2.87	Agree
2	2.93	Agree
3	2.79	Agree
4	3.02	Agree
5	2.29	Disagree
6	2.56	Agree
7	2.73	Agree
8	2.61	Agree
9	2.67	Agree
10	2.74	Agree
11	2.97	Agree
12	2.92	Agree
Average Mean	**2.76**	**Agree**

Legend: 1.00-1.49=Strongly Disagree; 1.50-2.49=Disagree; 2.50-3.49= Agree; 3.50-4.00=Strongly Agree

Table 4 displays the frequency and mean distribution of the responses of the students in terms of expectations of screen time use. One can glean from the table that only item 5 displayed a reaction of "disagree," wherein the computed mean value supported it. The rest of the items generated enough results to fall under the interpretation of "agree." The average mean for the expectations of screen time use also had the same remarks of "agree." The study's result disclosed that most students have a particular expectation that needs to be followed for their screen time use.

TABLE 5. *Family model screen time use*

Statement	Mean	Interpretation
1	2.65	Often
2	3.10	Often
3	2.51	Often
4	2.61	Often
5	2.76	Often
6	3.01	Often
7	2.51	Often
8	2.58	Often
Average Mean	**2.72**	**Often**

Legend: 1.00-1.49=Never;   1.50-2.49=Sometimes; 2.50-3.49= Often; 3.50-4.00=Always

Table 5 exhibits the frequency and mean distribution of the respondents in terms of family model screen time use. As presented in the table, item 2 displays the group's highest mean score, which falls under the interpretation of "often." On the other hand, items 3 and 7 showed the lowest mean values, corresponding to "often" in the performance. The overall mean falls under the interpretation of "often" also.

This study result assumes that the family influences how the students manage screen time exposure.

TABLE 6. *Significant differences using Kruskal-Wallis Test*

Profile	1	2	3	4
A	.265	.476	.361	.014*
B	.113	.021*	.041*	.636
C	.534	.731	.100	.000*
D	.081	.197	.379	.004*
E	.212	.848	.049*	.070
F	.049*	.937	.458	.160

Legend: A=Gender
 B=Civil Status
 C=Income
 D=Course
 E=Year Level
 F=GPA/GWA

Note: *$p < .05$

The study performed a Kruskal-Wallis test to determine if there were any variations in the students' responses when they were grouped into their demographic profiles. The data in the study were not normally distributed based on the normality test performed before the inferential test; thus, the data analyst performed the non-parametric test. As observed in the table for variable 1 (attitude toward reducing gadget screen time use), the inferential statistics only found a significant difference in terms of the student's Grade Point Average (GPA). For variable 2 (self-efficacy toward reducing screen time use), the computation only generated a significant difference in civil status. In variable 3 (expectations of screen time use), the calculation found substantial differences in terms of civil quality and year level of the students. Lastly, for variable 4 (family model screen time use), the study found significant differences in gender, civil status, average family monthly income, and course of the students. Based on the table, the mentioned demographic profiles revealed a *p*-value lower than the alpha level of significance of .05. Therefore, it is safe to conclude that there are significant differences found among the four variables when grouped according to the students' demographic profiles.

DISCUSSION

The objective of this study was to determine the gadget screen time use of higher education students in Central Luzon, Philippines.

Based on the study's result, the students' demographic profile provided a glimpse of the general status of their personal characteristics. As exhibited in the study, a good number of students were female, single, with monthly family income within 5,000-15,000 pesos, enrolled in Bachelor of Secondary Education, second-year level with a GWA/GPA between 86-90%. There are some similarities that the current study has with the previous one in terms of gender, year level (Delelis et al., 2018), and low socioeconomic status (Nair et al., 2022). This result is not as remarkable as it seems since the study focused on students in higher education institutions. It is essential to establish, however, the general characteristics of the sample population to analyze the extent of the study.

For the first variable of the study, the attitude of students toward reducing screen time use, the current study revealed that it is essential for them to manage their screen time exposure. One research concluded that the lockdown following the COVID-19 pandemic changed the various aspects of students' lifestyles, wherein their exposure to screen time increased (Ranjbar et al., 2021).

For the self-efficacy of students in reducing screen time use, the study revealed that students are self-efficient in reducing screen time use. But a study showed that parents could not control their children's smartphone usage as children consider it a form of deprivation of their rights (Buabbas et al., 2021). To another

study, time management and academic self-efficacy function as mediators between digital competence and stressors (Galindo-Dominguez & Bezanilla, 2020).

In the case of students' expectations of screen time use, the study respondents agreed on the different items which explored the expectations during the screen time exposure. Thus, parents or guardians should set ground rules for their children's screen time exposure or use (Eyimaya & Irmak, 2021). A study also exposed that parent stress levels increased during the school closure due to more hours of media screen time in children (Seguin et al., 2021).

In the context of the family model for screen time use, the respondents revealed that their households often have televisions and personal computers for family use. A related study showed that children live in a digital home environment where parents accompany their children using digital technologies (Konca, 2021). Another research article also concluded that the home environment, parental behaviors, role modeling, child preferences, and school policies influence screen time in the home (Arundell et al., 2020).

Finally, since the study tried to elicit if there are some degree of variations in the responses of the students, the inferential statistics showed some significant results. There was a substantial difference in the students' attitude regarding screen time use when grouped according to their GPA/GWA. As for the students' self-efficacy, there were significant findings regarding civil status. For the expectations of the students, significant variations were seen for civil quality and year level. And for the family model, there were substantial differences in gender, income, and course of the students. In a previous study the investigators showed that family factors explained the 14% variance, which suggested that aside from other factors, an immediate social environment also plays a role in students' excessive internet use behavior (Faltynkova et al., 2020). A study also revealed that parental mental health decreased due to the loss of child care and school (Hartshorne et al., 2021).

CONCLUSION

From the previous results and discussion of the study, the researcher concluded the following:

The respondents' demographic characteristics were as follows: female, single, with a family monthly income between 5,000-15,000 pesos, taking up a Bachelor in Secondary Education course, second-year level, and with a GPA/ GWA between 86%-90%.

The students generally answered that they must reduce their screen time exposure. The students also agreed on the different perspectives regarding their self-efficacy in reducing screen time use. In terms of the students' expectations for their screen time use, they generally agree on the various items mentioned in the survey. Finally, the students answered often for the different mentioned gadgets mentioned for the family model of screen time use.

Statistical inferences showed significant differences in the attitude toward reducing gadget screen time use in terms of GPA/GWA; self-efficacy in reducing gadget screen time use in terms of civil status; expectations of screen time use in terms of civil status and year level; and family model of screen time use in terms of gender, monthly family income, and course of the students.

IMPLICATIONS
Based on the following results, discussion, and conclusion of the study, the researcher as a result of this presents the following implications:
1) For the family, a constant reminder and practice of gadget screen time off are highly advisable, especially in this era of technological reliance on youth.

2) For the student, effective time management and the notion of not relying too much on gadgets help promote self-efficacy, for instance, reading books, journals, magazines, and other written materials for school activities and assignments.

3) For the institution, encourage a digital environment with a greater emphasis on human communication and interactive learning inside and outside the school premises.

4) For the teachers/ instructors, provide a curriculum that utilizes digital and traditional teaching and learning methods for students so that they will not rely too much on gadgets for their learning.

REFERENCES

Amelia, V.L., & Ramdani, M.L. (2019). Screen time activity and its impact to sleep duration of school-aged. *Medisains Jurnal Ilmiah Ilmu-ilmu Kesehatan, 17*(1), 3-7. http://dx.doi.org/10.30595/medisains.v17i1.4823

Anuradha, B., (2019). Screen Time, *Journal of Tropical Pediatrics*, *65*(2), 105–106. https://doi.org/10.1093/tropej/fmz014

Arundell, L., Parker, K., Timperio, A. Salmon, J., & Veitch, J. (2020). Home-based screen time behaviors amongst youth and their parents: familial typologies and their modifiable correlates. *BMC Public Health, 20,*1492. https://doi.org/10.1186/s12889-020-09581-w

Babaroh, B., & Sugianti, L. (2021). Gadget addiction and the student's achievement. *International Journal of Social Learning,1*(3), 321-332. https://doi.org/10.47134/ijsl.v1i3.59

Baby R.S., Issac, A., Vasudev, A., Sabu, D.K., Gopika, T.S., Pl, M., & Sahu, R. (2021). Impact of screen time on sleep quality.

Indian Journal of Psychiatric Nursing, 18(1), 29-32. https://doi.org/10.4103/iopn.iopn_15_21

Buabbas, A., Hasan, H., & Shehab, A.A. (2021). Parents' attitudes toward school students' overuse of smartphones and its detrimental health impacts: Qualitative study *JMIR Pediatrics and Parenting, 4*(2), e24196. https://doi.org/10.2196/24196

Cleofas, J.V., & Rocha, I.C.N., (2021). Demographic, gadget, and internet profiles as determinants of disease and consequence related COVID-19 anxiety among Filipino college students. *Education and Information Technologies, 26,* 6771–6786. https://doi.org/10.1007/s10639-021-10529-9

Delelis, M.G.T., Talosig, G.C., Lardera, M.G., Sarmiento, S.J.A., & Macabadbad, R.C. (2018). E-Gadgets of generation X and millennials: Their social life. *International Journal of Advanced Research in Management and Social Sciences, 7*(2), 78-94. https://garph.co.uk/IJARMSS/Feb2018/7.pdf

Dizon,B.M.B., Dolor, M.K.Y.D., Domalanta, A.J.T., Domingo, P.F.M., Domingues, J.A.V., Dulay, A.M., Dulfo, A.C., Dumo, H.M.A., Ebuengan, K.J.T., Eduardo, D.D. L., Ela, P.D.J., Elarmo, T.A.B., & Adversario, M.P.L. (2019). Association between duration of gadget use and the socio-emotional difficulties of junior high school students in selected private schools in Quezon City: An analytic cross-sectional study. *UERM Health Sciences Journal, 8*(1), 2019). https://library.uerm.edu.ph/kohaimages/UERM/repository/Health%20Sciences%20Journal/Vol8%20No1%20January-June%202019/HSJ%20vol.8no.1%202019-45-51.pdf

Eyimaya, A.O., & Irmak, A.Y. (2021). Relationship between parenting practices and children's screen time during the COVID-19 pandemic in Turkey. *Journal of Pediatric Nursing, 56,* 24-29.

https://doi.org/10.1016/j.pedn.2020.10.00 2

Faltýnková, A., Blinka, L., Ševčíková, A., & Husarova, D. (2020). The associations between family-related factors and excessive internet use in adolescents. *International Journal of Environmental Research and Public Health*, *17*(5), 1754. https://doi.org/10.3390/ijerph17051754

Fatima, A., Ansari, S.K., Waqar, H., Jameel, A. (2021). Determine augmented risk association between health problems and screen exposure to electronic gadgets in university students, Islamabad during COVID-19 pandemic. *Innovation, 2*(2), 22-26. https://doi,org/10.11648/j.innov.2021020 2.11

Foo, S.X., Marina, A.N., Aparna, M., Afaaf, E., Amy Pakiam D. Jy., Hew S.Y., Verna Lee, K.M., & Fai'za A. (2021). Association between screen time and sleep among children between 2 to 6 years old. *Malaysian Family Physician, 16,* 22. https://www.proquest.com/openview/316 87537d110a1394d163f1e69749a66/1?pq-origsite=gscholar&cbl=2031889

Galindo-Domínguez, H., & Bezanilla, M.-J. (2021). Promoting Time Management and Self-Efficacy Through Digital Competence in University Students: A Mediational Model. *Contemporary Educational Technology, 13*(2), ep294. https://doi.org/10.30935/cedtech/ 9607

Gautam, A., Yadav, A., Mittal, A., Arya, V., & Kaushik, J.S. (2022). Internet addiction and screen time exposure among children with migraine. *Indian Journal of Pediatrics,* 89**,** 627. https://doi.org/10.1007/s12098-022-04114-2

Handayani, O. W. K., Yuniastuti, A., Abudu, K. O., & Nugroho, E. (2021). Gadget addiction and the effect of sleep habit, stress, and physical activity to obesity. *Malaysian Journal of Public Health Medicine*, *21*(1), 1-8. https://doi.org/10.37268/mjphm/vol.21/ no.1/art.272

Hartshorne, J.K., Huang, Y.T., Paredes, P.M.L., Oppenheimer, K., Robbins, PT, & Velasco, M.D. (2021) Screen time index as an index of family distress. *Current Research in Behavioral Sciences, 2*, 100023. https://doi.org/10.1016/j.crbeha.2021.100 023

Koirala, S., Banstola, S., Shrestha, N., Gurung, N., Sah, S. K., & Sharma, B. (2021). Role of parents on-screen time of young children in Pokhara metropolitan, Nepal- a cross sectional study. *Journal of Gandaki Medical College-Nepal*, *14*(1), 8–13. https://doi.org/10.3126/jgmcn.v14i1.3476 6

Konca, A.S. (2021). Digital Technology Usage of Young Children: Screen Time and Families. *Early Childhood Education Journal.* https://doi.org/10.1007/s10643-021-01245-7

Lau, E.Y.H., & Lee, K. (2021). Parents' views on young children's distance learning and screen time during covid-19 class suspension in Hong Kong. *Early Education and Development, 32*(6), 863-880, https://doi.org/10.1080/10409289.2 020.1843925

Maqfiro, S.N., Fajrin, I., & Suaib, N. (2021). Relationship between screen time among children with nutritional status and their development. *Midwifery and Nursing Research, 3*(2), 69-75. https://doi.org/10.31983/manr.v3i2.7624

Nair, ANKK, Jayan, AJ, Santhosh, M.M., Lalichen, L.M., Santosh, A., & Indu, PS (2022). High screen time and associated factors among high school students in an urban setting of Kerala: A cross-sectional study. *International Journal of Community Medicine and Public Health, 9*(2), 767-771.

https://dx.doi.org/10.18203/2394-6040.ijcmph20220237

Nathania, J., Sidharta, V.M., Prastowo, N.A., & Hananta, L. (2022). The association of mobile screen time and elevated blood pressure during the COVID-19 pandemic. *International Journal of Physical Education, Sports, and Health, 9*(1), 433-436. https://doi.org/10.22271/kheljournal.2022.v9.i1g.2367

Othman, N., Kelana, M.K.S.B.K., & Jamaludin, S. (2020). The impact of electronic gadgets' uses with academic performance among secondary school students. *Practique Clinique et Investigation, 2*(2), 56-60. https://core.ac.uk/download/pdf/300478175.pdf

Paguirigan, E, M., & Paguirigan, M, J, R. (2022). Parenting in the digital age: Implications to physical, social and academic life of children in various age groups. *Jurnal Pendidikan Progresif*, *12*(2), 866-880. https://doi.org/10.23960/jpp.v12.i2.202237.

Putri, A. N., Setiawati, Y., Shieh, Y. T., & Lin, S-H. (2022). High-risk internet addiction in adolescents during pandemic Covid19 and parents' role. *Jurnal Berkala Epidemiologi, 10*(1), 11–20. https://dx.doi.org/10.20473/jbe.v10i12022.11–20.

Rafidah, S.F., Rafif,K.T., Amru, S.N., & Fatmaningrum, W. (2022). Raising awareness and knowledge regarding gadget addiction during COVID-19 pandemic through webinar. *World Journal of Advanced Research and Reviews, 13*(1), 332-337. https://doi.org/10.30574/wjarr.2022.13.1.0008

Ranjbar, K., Hosseinpour, H., Shahriarirad, R., Ghaem, H., Jafari, K., Rahimi, T., Mirahadizaeh, A., & Hosseinpour P. (2021). Students' attitude and sleep pattern during school closure following COVID-19 pandemic quarantine: a web-based survey in south of Iran. *Environmental Health Preventive Medicine, 26,* 33. https://doi.org/10.1186/s12199-021-00950-4

Salipsip, D.C.S., Raca, J.N.Q., Razon, M.A.C., Serrano, M.M., Singh, B.C., & Ponciano, F.E. (2021). Effects of Third-year Medical Technology Students' Amount of Sleep, Screen Time, and Physical Activity to their Academic Performance. *International Journal of Progressive Research in Science and Engineering*, *2*(9), 156–170. https://journals.grdpublications.com/index.php/ijprse/article/view/441

Seguin, D., Kuenzel, E., Morton, J.B., & Duerden, E.G. (2021). School's out: Parenting stress and screen time use in school-age children during the COVID-19 pandemic. *Journal of Affective Disorders Reports, 6,* 100217. https://doi.org/10.1016/j.jadr.2021.100217

Shahid, E., Taqi, U., Wamiq, M., Fasih, U., & Jafri, A.R. (2021). Duration of daily digital screen time during COVID-19 and its ocular impact on children in Pakistan. *Primary Health Care: Open Access, 11*(11), 410. https://www.iomcworld.org/abstract/duration-of-daily-digital-screen-time-during-covid19-and-its-ocular-impact-on-children-in-pakistan-88463.html

Shanmugasundaram, S., Swetham N.B., & Gopalakrishnan, S. (2019). Effects of electronic gadget usage on sleep quality among medical students in Chennai. *International Journal of Public Health Research & Development, 10*(11), 1564-1567. https://doi.org/10.5958/0976-5506.2019.04436.X

Taguinod, D. (2022). Management of screen time usage and sleep condition among BSIT third-year students in CSU Carig-Campus. *International Journal of Arts, Sciences, and Education, 3*(1), 282-294. https://www.ijase.org/index.php/ijase/article/view/115

Tripathi, M., & Mishra, S.K. (2020). Screen time and adiposity among children and adolescents: a systematic review. *Journal of Public Health, 28,* 227–244. https://doi.org/10.1007/s10389-019-01043-x

West S., Puszczynski, R., & Cohn, T. (2021). Exploring recreational screen time and social anxiety in adolescents. *Pediatric Nursing, 47*(3), 133-140. https://www.proquest.com/docview/2541928952?pq-origsite=gscholar&fromopenview=true

Yeluri K, Kiran, H., H B.G., & Bj S.C. (2021). Electronic Gadget Screen-time, perceived sleep quality & quantity and academic performance in medical students. *The Journal of the Association of Physicians of India, 69*(11), 11-12. https://europepmc.org/article/med/34781611

Yohana, A., & Mulyono, S. (2021). The impact of digital era: Intensity of excessive use of gadgets causing eating difficulty on children. *Enfermeria Clinica, 31*(2), S6-S9. https://doi.org/10.1016/j.enfcli.2020.10.005