

Impact of Using Electronic Devices on Health and Nutritional Status among College Students in Surigao Del Sur State University

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Abstract: *Use of electronic devices has a beneficial role to mankind. However, due to the constant use of these devices, health risks arise among people-particularly young people because of increasing idleness among the young. Hence, the impact of using electronic devices on health and nutritional status among college students in Surigao del Sur State University (SDSSU) is studied using descriptive-quantitative using self-made questionnaire. Results showed that most of the respondents were female (67%), ages 19-20 (56%), body mass index (BMI) at normal level (50%) and the activities done were mostly household chores (47%). Among the electronic devices used, cell phone was the highest (43%), followed by television (33%) and laptop (20%), respectively. News (29%) and film shows (24%) were the most liked television programmes and about 74% like to eat while watching television. Bread (20%) is the most preferred food followed by junk food (17%). Within the range of 1 to 5 hours, about 98% respondents watch television, 95% use laptop, 75% use cell phone and 86% use tablet. Among the electronic devices, use of cell phone in a day in which 20% of the respondents exposed to the same device ranges from 6 to 10 hours and approximately 5% lasted for 15 hours a day. Headache (44%) prevailed most in health-related variables followed by body weakening (25%). As the use of electronic devices continues among college students, health and nutrition of students might be affected.*

Keywords: Electronic devices, Health, Nutrition and Students

1. Introduction

Many lives had been influenced by mass and social media including family routines, social interactions and leisure activities. These media are brought to humans by the development of various electronic devices such as televisions, mobile and smart phones, computers and game consoles. In this century, use of electronic devices had been the centre of the daily activities of people. Almost every household and every human being in the world own one electronic device. Aside from simplifying human tasks, it provides a source of entertainment to most people. It is, however, has a bad impact towards human health.

In the modern world, human lifestyle had shifted partly to the virtual world due to the modern technology that provides countless opportunities for socialization. However, it can affect the quality and depth of conversations between people. According to Zickuhr (2011), about 96% of college students reported owns a cell phone and 84% reported owns an iPod or mp3 player (Smith et al. 2011). In addition, according to Smith (2012) and Kennedy et al. (2008) about 45% ages 18 to 29 years-old had access to the internet using their cell phones and did majority of their online browsing through mobile devices. Overuse of mobile gadgets hampers students' ability to study and sleep (Shusuki 2015) and too much internet use can damage teenagers' brain (Harris 2015). According to World Health Organization (2011), there is a potential risk of cancer caused by mobile phone radiation. A recent study of Reardon (2011) said that one should talk on mobile phones only for six minutes or using headset to decrease radiation exposure to the brain.

Madden (2009) stated that about 58% of young adults reported watches television almost every day and found that 90% of young adults was using internet to watch television online. In the United States, a typical child watches television approximately 20 hours per week. In the study of Salaway et al. (2008), young adult spends an average of 18 hours per week online. Researches have been done about television and child's exposure to television and revealed that there are detrimental effects in terms of health and behaviour (Mc Anally et al. 2014). Technology access and usage are advantageous; however, according to Rosenberg et al. (2010), sedentary behaviours could lead to problematic health problems. Thus, this study aims to assess the status of using electronic devices among college students in SDSSU Cantilan.

2. Methodology

The research method employed was a descriptive-quantitative method. It was done at Surigao del Sur State University-Cantilan Campus. A validated semi-questionnaire and an interview were conducted to each student in a face to face manner for data collection. Respondents were selected through simple random sampling with the total number of participants to be determined using Sloven's formula.

The parameters included in the questionnaire were as follows: demographic profile, activities done, body mass index (BMI), type of food consumed and electronic devices used, mode of using the devices in terms of hours exposed to certain gadgets. The collected data was tabulated and analysed in accordance with the statistical and scientific method.

3. Results and Discussion

The respondents were 105 students enrolled in SDSSU. The total adjusted response rate was 70.0% (105/150). To protect against non-response bias, IBM Corporation (2010) stated that the acceptable total usable questionnaire is based on 50%-60%; the present study has a total used questionnaire of 70%. Table 1 shows the obtained data. Results showed that majority of the participants were female (n=70, 67%) between ages 19-20 (n=59, 56%). The BMI scores were calculated from self-reported height and weight. The classification ranged from underweight to obese. Fifty percent (n=37) were within normal BMI, followed by 33% (n=24) overweight, 15% (n=11) underweight and 2% (n=2) obese, respectively. Doing household chores (n=100, 47%). This was followed by

watching television (n=66, 28%), texting (n=41, 17%) and physical fitness (n=31, 13%).

Household chores involves cleaning, cooking, home maintenance, laundry and bill pay which could be performed by any person. According to Reader's Digest (2017), sweeping or mopping is a very good workout it can burn out about 240 calories per hour. Furthermore, gardening can also help burn calories. Results showed that students mostly perform household chores, a very good indication of their awareness on their health as shown in their normal BMI.

Twenty-eight percent (28%) of students were recorded to prefer watching television most of their time. Gomez et al. (2017) stated, however, that watching television has been consistently associated with higher risk of adverse health outcomes since it is one of the sedentary activities.

Table 1: Summary of demographic profile, BMI and type of activity among SDSSU students

Demographic Variables	N	(%)
Sex (n=105)		
Male	35	(33)
Female	70	(67)
Age (n=105)		
17-18	20	(19)
19-20	59	(56)
21-22	11	(10)
23-24	5	(4)
25-26	3	(3)
27-28	3	(3)
29-30	2	(2)
31-32	1	(1)
33-34	1	(1)
35-36	1	(1)
BMI (n=74)		
Underweight	11	(15)
Normal	37	(50)
Overweight	24	(33)
Obese	2	(2)
Activities (n=238)		
Physical fitness	31	(13)
Watching TV	66	(28)
Household chores	100	(42)
Texting	41	(17)

Physical fitness is the least performed activity by college students based on the result. Eime et al. (2016) stated that physical activity decreases during the adolescent years which is true for this study since most of the respondents were on their late adolescent years (19-20 years old). Likewise, such decrease in physical activity leads to increase in sedentary behaviours as stated in the reports of Bauer et al. (2012) and Leatherdale (2010).

The study also affirms that there is an increase in sedentary behaviours among students because 43% of the students in SDSSU have cell phones, 33% have televisions and 20% have laptops. Lepp (2013) also confirms that college students who used their cell phones frequently are more likely to engaged in sedentary behaviour rather than participating in physical activity.

Table 2: Summary of electronic devices used, preferred television programs, activity done during watching tv and health conditions of students in SDSSU

Variables	N	(%)
Electronic Devices		
Television	81	(33)
Laptop	50	(20)
Cell phone	104	(43)
Tablet	9	(3)
PSP	1	(1)
Television Programmes		
Cartoons	44	(16)
Educational show	59	(20)
News	80	(29)
Film shows	66	(24)
Social shows	35	(11)
Eat watching Television		
Yes	67	(74)
No	24	(26)
Food consumed (n=345)		
Junk foods	58	(17)
Fruits	56	(16)
Coffee	37	(11)
Soda	24	(7)
Burger	25	(7)
Bread	66	(20)
Root crops	29	(8)
Cakes	8	(2)
Milk	25	(7)
Sugary beverages	17	(5)

Electronic devices have various functions or uses which is important in most people nowadays. With various utilities, it gives satisfaction in various angles to users. Table 2 showed different types electronic devices used by college students in SDSSU. Among the electronic devices, cell phone was the most frequently used (43%) electronic device. This is followed by television (33%) and laptop (20%), respectively. These results confirmed the study of Smith et al. (2013) that about 96% of the college students own portable technology like cell phones and 84% owns an iPod or mp3 player.

As shown in the results, news (29%) was the most-liked television program followed by film shows (24%), educational shows (20%), cartoons (16%) and social shows (11%), respectively. This indicates that college students are concerned about the happenings of our current society. Students much preferred watching film shows than educational shows as shown in the results since movies or film shows are sources of entertainment (Verma 2017). This indicates that students are not only concerned of the situation of the society but also they need entertainment.

As shown in Table 2, about 74% of the students likes to eat while watching television. Among the food identified in the self-made questionnaire, bread (20%) is the most preferred food while watching T.V. followed by junk foods (17%). It is stated in the health line (Roland, 2017) that bread has high carbohydrates which could cause a

rapid increase in blood sugar and insulin level. Additionally, junk foods are bad for health as it leads to obesity, bad cholesterol, gastrointestinal problems, blood pressure, heart disease, etc. However, in the present study, 33% were overweight and only 2% of the respondents were identified as obese.

According to Smith (2012) and Kennedy et al. (2013), almost half (45%) of 18 to 29 years old have access to internet on their cell phones and majority of these individuals do their online browsing through a mobile device. Additionally, in relation to traditional television viewing, about 58% of young adults is reported to watch television almost every day (Madden, 2013). Based on the data from the US Department of Labors (2018), the American Time Use Survey (ATUS) suggested that teenagers will watch television for 2.2 hours per day.

However, in the present study, almost 98% of the respondents are watching television approximately 5 hours a day, which is beyond the level suggested by ATUS. Aside from television, 95% use laptops, 75% use cell phones and 86% use tablets within the range of 1-5 hours. Likewise, figure 1 shows that cell phone is the most used device. There is about 20% of the respondents exposed to the same device which range from 6 to 10 hours and approximately 5% lasted for 15 hours a day. In the study of Salaway et. al (2008), it showed that students average spending time online is 18 hours per week. Inversely, in

the present study, approximately 35 hours per week is the average spending time online indicating that students in SDSSU are more exposed to electronic devices particularly to cell phones. According to Belanger (2011),

adolescents who were classified as heavy internet users (>2 hours a day) have a higher risk for becoming overweight.

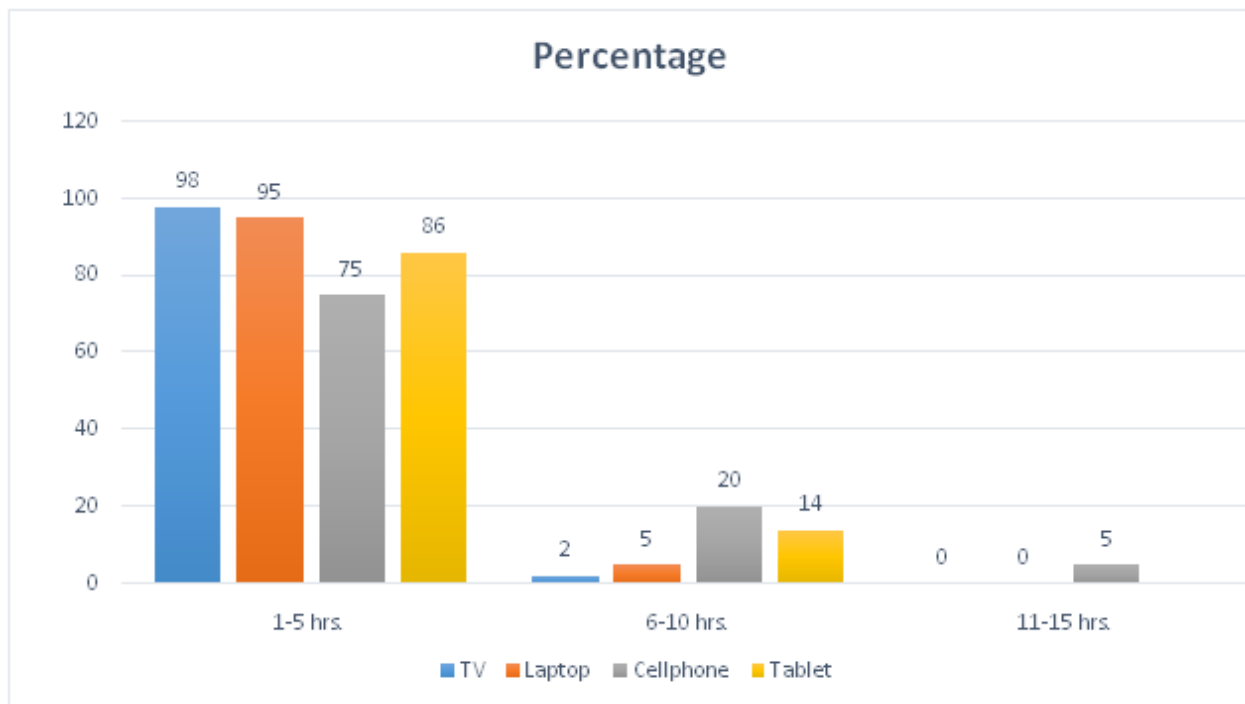


Figure 1: Number of hours exposed to electronic devices

Table 3: Identified Health-related variables

Health-related Variables	Percentage (%)
Headache	44%
Hand numbness	12%
Body weakening	25%
Nausea and vomiting	4%
Dizziness	15%

The use of electronic devices such as laptops, e-readers, computer tablets, and cell phones is integral to everyday life for most individuals (Goswami et.al, 2016). However, almost all electronic devices have radiation, either high or low. The radiation will affect the brain, nerves, eyes and ears (Selvarajah et. al. 2017). According to the American Optometric Association (AOA) (2016), computer vision syndrome results from prolonged use of laptops, tablets, e-readers, and cell phones. Users may experience headaches, eye pain or watering, double vision, dry eye, loss of focus, and neck and shoulder pain. In the present study, as shown in figure 2, headache (44%) prevailed the frequent health concern among students followed by body weakening (25%) confirming the statement of AOA.

4. Conclusion

Use of electronic devices has a beneficial role to mankind. However, due to the constant use of these devices, health risks arise among people-particularly young people because of increasing idleness among the young. In the present study result showed that there is less impact of using electronic devices on the health and nutritional status among college students in Surigao del Sur. However, as the use of electronic devices continues among college

students their health and nutritional standing might be affected. Further investigations are essential to improve understanding on the impact of technology use on health condition of the college students.

References

- [1] Zickuhr K. Generations and their gadgets. Pew Internet & American Life Project (on-line), Available at: <http://pewinternet.org/Reports/2011/Generations-and-gadgets.aspx>. Accessed June 2018.
- [2] Smith A, Rainie L, Zickuhr K. College students and technology. Pew Internet & American Life Project (online). Available at: <http://www.pewinternet.org/Reports/2011/College-students-and-technology.aspx>. Accessed June, 2018
- [3] Smith A. 17% of cell phone owners do most of their online browsing on their phone rather than a computer or other device. Pew Internet & American Life Project (online). Available at: http://pewinternet.org/~media/Files/Reports/2012/PIP_Cell_Phone_Internet_Access.pdf. Accessed February 2, 2018
- [4] Kennedy T, Smith A, Wells A, Wellman B. Parents and spouses are using the internet and cell phones to create a “new connectedness” that builds on remote connections. Pew Internet & American Life Project (on-line). Available at: http://pewinternet.org/~media/Files/Reports/2008/PIP_Networked_Family.pdf. Accessed June, 2018.
- [5] Shusuki, Murai, 2015. Overuse of mobile gadgets hampers students’ ability to study, sleep. The Japan Times. Available at: <https://www.japantimes.co.jp/news/2015/05/01/nation>

- al/social-issues/overuse-mobile-gadgets-hampers-students-ability-study-sleep/ Accessed July, 2018
- [6] Harris, S. 2011. Too much internet use can damage teenagers' brains'. Available at: <https://www.dailymail.co.uk/sciencetech/article-2015196/Too-internet-use-damage-teenagers-brains.html>.
- [7] Reardon, Marguerite. 2011. Cellphone radiation: A self-defence guide. Available at: <https://www.cnet.com/news/cell-phone-radiation-a-self-defense-guide-faq/>
- [8] Madden M. 2009. Sharing sites shoots up as the audience for online video continues to grow, a leading edge of internet users are migrating their viewing from their computer screens to their TV screens. Pew Internet & American Life Project (on-line). Available at: <http://pewinternet.org/~media/Files/Reports/2009/The-Audience-for-Online-Video-Sharing-Sites-Shoots-Up>.
- [9] Salaway G, Caruso J, Nelson MR. 2008. The ECAR study of undergraduate students and information technology. Educause Center for Applied Research.
- [10] Mc Anally, H.M. and Hancox, R.J. 2014. The long-term health effects of too much television: Whose responsibility? *BMJ Journal* Volume 68. Issue 10
- [11] Rosenberg D, Norman G, Wagner N, et al. 2010. Reliability and validity of the Sedentary Behavior Questionnaire (SBQ) for adults. *J Phys Act Health*. ;7:697-705.12.
- [12] BM Corporation. IBM SPSS Statistics for Windows, Version 19.0. Armonk, NY: IBM Corporation; 2010.
- [13] Reader's Digest. 2017. 6 Household chores that Burn Major Calories. Available at: <https://www.rd.com/home/cleaning-organizing/6-household-chores-that-burn-major-calories/>
- [14] Gomez, E.A., Esquinas, E.G, Ortola, R., Gomez, D.M. and Artalejo, F.R. 2017. Watching TV has a distinct sociodemographic and lifestyle profile compared with other sedentary behaviors: A nationwide population-based study
- [15] Rochelle M. Eime^{1, 2*}, Jack T. Harvey^{1, 2}, Neroli A. Sawyer^{1, 2}, Melinda J. Craike¹, Caroline M. Symons¹ and Warren R. Payne¹. 2016. Changes in sport and physical activity participation for adolescent females: a longitudinal study. *BMC Public Health* (2016) 16:533. DOI 10.1186/s12889-016-3203-x
- [16] Bauer K, Friend S, Graham D, Neumark-Sztainer D. Beyond screen time: assessing recreational sedentary behavior among adolescent girls. *J Obes*. 2012;183-194. doi:10.1155/2012/183194
- [17] Leatherdale S. Factors associated with communication based sedentary behaviors among youth: are talking on the phone, texting, and instant messaging new sedentary behaviors to be concerned about? *J Adolesc Health*. 2010;47(3):315-318
- [18] Lepp A, Barkley J, Sanders G, et al. The relationship between cell phone use, physical and sedentary activity, and cardiorespiratory fitness in a sample of U.S. college students. *Int J Behav Nutr Phys Act*. June 21, 2013;10:79 Verma, Aakash; Vasant Kunj, 2017. Benefits of Movies. International Management School.
- [19] Roland, James, 2017. How does eating affect your blood sugar, Health line
- [20] Kennedy T, Smith A, Wells A, Wellman B. Parents and spouses are using the internet and cell phones to create a "new connectedness" that builds on remote connections. Pew Internet & American Life Project (on-line). Available at: http://pewinternet.org/~media/Files/Reports/2008/PIP_Networked_Family.pdf. Accessed February 2, 2013.
- [21] Madden M. Sharing sites shoots up as the audience for online video continues to grow, a leading edge of internet users are migrating their viewing from their computer screens to their TV screens. Pew Internet & American Life Project (on-line). Available at: <http://pewinternet.org/~media/Files/Reports/2009/The-Audience-for-Online-Video-Sharing-Sites-Shoots-Up>. Accessed February 2, 2013
- [22] US Department of Labor. 2018. American Time Use Survey — 2017 Results, https://www.bls.gov/news.release/archives/atus_06282018.pdf
- [23] Bélanger RE, Akre C, Berchtold A, Michaud PA. A Ushaped association between intensity of Internet use and adolescent health. *Pediatrics*. 2011;127(2):e330-e335.
- [24] Vandana Goswami, Dr. Divya Rani Singh. 2016. Impact of mobile phone addiction on adolescent's life: A literature review. *International Journal of Home Science* 2016; 2(1): 69-74
- [25] Selvarajah, K., Aizat, Z., Faiz, K., Ahmi, J. 2017. The Effect of Electronic Device on Human Health. *Scientific and Academic Publishing Management p-ISSN: 2162-9374 e-ISSN: 2162-8416* 2017; 7(1): 40-43, doi:10.5923/j.mm.20170701.05