

Impact of Over-utilisation of Electronic Gadget on Student Health: An Appraisal

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Abstract:

It is known to all electronic gadgets like mobile phones, laptops, desktops and tabs have become an integral part of our daily lives. With the passage of time, population using all these electronic gadgets are rising at a rapid rate. Moreover, the use of these devices has become very popular among the school and college students. Since battle against COVID-19 is still going on, educational institutions are still closed and students have to pursue their academic career by means of online education. As a result, the utilisation of these electronic devices has become inevitable. However, students are using these devices not only for attending their online classes but also for several other purposes to enjoy their leisure hours. So, the degree of exposure to these devices have increased to a marked extent which is having a significant effect on the physical and mental health of the students. The study revealed that most of the students are suffering from problems like eye problems and loss of concentration. Out of all the problems, eye problems and hearing problems turned out to be the dominant physical problems because of over-utilisation of electronic gadgets.

Keywords: *Electronic gadgets, Exposure to electronic gadgets, Physical Health, Mental Health.*

Date of Submission: 25-05-2021

Date of acceptance: 07-06-2021

I. INTRODUCTION

Electronic gadgets have been playing a vital role in our daily life. It is very hard for us to imagine one day without computers and mobile phones. Besides, availability of internet connection in these devices have made the use of these devices even more popular. In other words, these gadgets act as a source of fuel for efficient movement of the daily rhythm of human life (Jennifer, 2012). India turned out to be the country with world's second largest internet using population. Reports of International Telecommunication Union (ITU) World Telecommunication database shows that the percentage of global population using internet have risen from 0.049% in 1990 to 48.9% in 2017. Presently, the utilization of mobile and laptops have become very much popular among the students of schools and colleges. After the outbreak of the COVID-19 pandemic in 2020, the mobile and laptops have become an integral part of student life as the educational institutions were closed and the students had to do online classes (Sen S. *et al.*, 2020). The students are not only using these electronic gadgets for attending their online classes but also are using these devices for various entertainment purposes. Owing to these activities, the exposure of the students to these gadgets are becoming long and it is having a significant impact upon the health of the students which includes both physical and mental. An attempt has been made in this paper to analyse the effect of over-utilisation of these electronic gadgets on student health and to suggest suitable recommendations for their solution.

II. METHODOLOGY

In order to accomplish the task, a primary survey was undertaken. Questionnaire survey was carried out by preparing a Google form consisting of the questions and the responses were collected by sharing the link and 200 respondents were selected as sample for the fulfilment of the study. Their responses were recorded, tabulated and analysed. In order to understand the intensity of several problems on student health, weighted score analysis was performed. Out of 200 samples, 100 samples were selected for this purpose. These 100 respondents consisting of both parents and students were questioned in order to have a proper and accurate idea about the specific health issue faced by the students. On the basis of the discussions, five major problems were identified and they were given weightage out of 1 on the basis of the number of respondents responding to the specific problem. Now the weightage and the number of respondents were multiplied to compute the Weighted Score. Higher the value of the weighted score, the higher the degree of health problem is (Goswami A. *et al.*, 2020).

Finally, graphs and diagrams were prepared using MS Excel. These graphs were analysed and interpreted to arrive at the final results.

III. RESULTS AND DISCUSSIONS

Type of Gadget used for online class:

Out of 200 samples surveyed, it has been seen that about 91% of the respondents are using android mobile phones for attending their online classes, 6.6% of the respondents are using laptops, 1.8% of respondents are using tabs while the remaining 0.6% of the respondents are using desktop computers for attending their online classes (Figure 1). Respondents are of the opinion that the reason responsible for dominance of use of mobile phones is that they can use this gadget by sitting in their comfortable body posture. Besides, mobile phones have nothing related to power cut except for charging. Respondents stated that even if there is a power cut, they still can use their mobile phones and the mobile internet package to attend their classes. Reason responsible for lowest use of desktop computer is that the device cannot be used if there is a power failure.

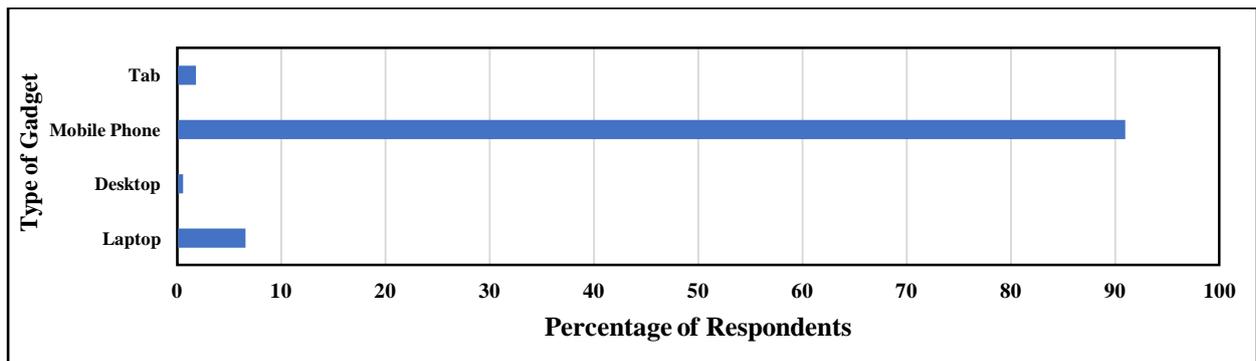


Figure 1: Type of Gadget used by respondents for attending Online class (Source: Primary Survey)

Hours of use of electronic device for online class:

Effect of over-utilisation of electronic gadget on human health is largely determined for how long a person remains exposed to the gadget (Sarla, 2020). Since in the middle of the pandemic, online teaching is the only option this factor was also taken into account. The study revealed that out of 200 respondents, about 40.1% of the respondents use electronic gadget for less than 4 hours for attending online classes, 46.1% of the respondents use electronic gadget between 4 to 6 hours for attending online classes while the remaining 13.8% of respondents use electronic gadget for more than 6 hours for attending online classes (Figure 2).

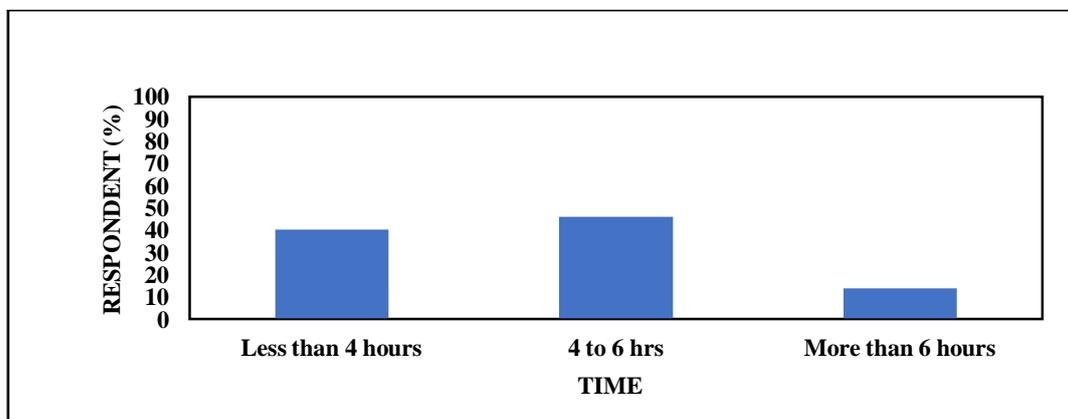


Figure 2: Hours of use of Electronic Devices for Online Class (Source: Primary Survey)

Break in between classes:

As continuous exposure to electronic device is harmful for the health of a person, there must be a break in between two classes. On performing the survey, it has been revealed that out of 200 respondents, 82% (164 respondents) stated that they are given break in between two classes while the rest 18% stated that there is no break between the classes (Figure 3A). Out of 164 respondents who stated that they enjoy break between classes, 42.5% stated that they enjoy the break for less than 15 minutes, 26.4% of respondents stated that they enjoy break for 15 to 30 minutes while the remaining 31.1% stated that they enjoy the break for more than 30 minutes (Figure 3B).

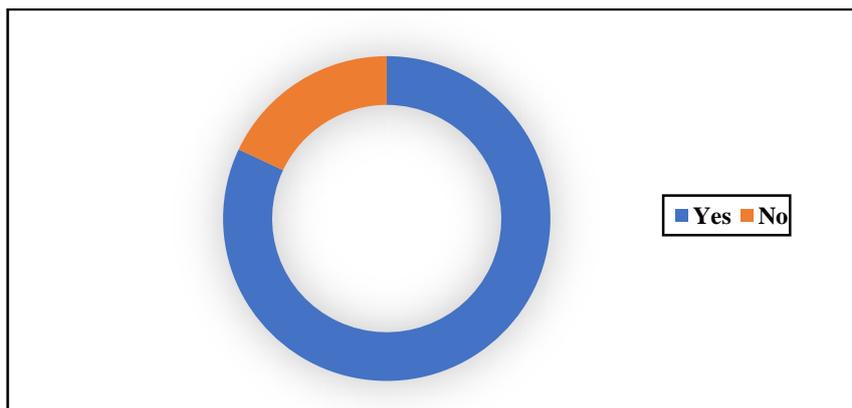


Figure 3A: Incidence of break between online classes (Source: Primary Survey)

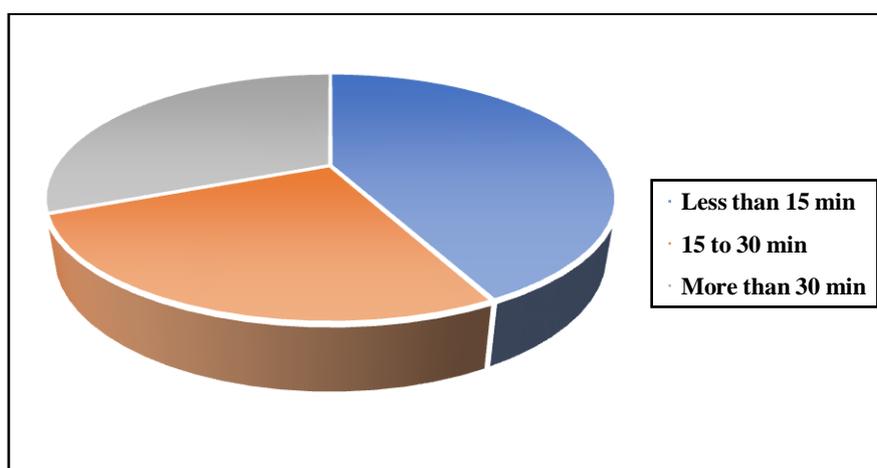


Figure 3B: Time of break between online classes (Source: Primary Survey)

Use of Electronic gadget other than online class:

In our modern world, we cannot think of a single day without electronic devices and internet connections (Choudhary B.S. *et al.*, 2020). The importance of these devices has become even more conspicuous after the world was grasped by the cruel clutch of COVID-19. Since all educational institutions are closed, students are doing online classes. Besides, they are also using these devices for other purposes which again is increasing the degree of exposure to the device. Through the survey, it has been found that out of 200 respondents, about 93.4% of respondents (187) are using the electronic devices for other purposes while a very few proportions of 6.6% are not using electronic device for other purposes other than online class.

Out of 187 respondents who use electronic devices for other purposes other than online class, 2.4% use them for watching movies from the internet, 8.4% use the devices for playing games, 5.4% use the devices for watching web series, 34.1% use them for exploring social networking sites like Facebook, twitter, WhatsApp, telegram, Instagram etc. It has also been found that most of the respondents i.e., 49.7% use these devices for all the purposes mentioned above (Figure 4). In the middle of the pandemic, man has become very isolated. Respondents are of the opinion that since they are unable to go out, they are remaining connected with the outside world only by means of social media and this have aggravated the degree of utilisation of their electronic devices. They opined that as they are unable to go out, they often do conference calls or video calls using different applications like Google meet, Webex, Zoom etc. Respondents are also of the opinion that as the schools and colleges are closed, they are not getting access to enriched study materials from their institutional libraries. So, they often have to browse the net for longer hours in search of study materials or watch tutorial videos from YouTube. Telephonic interview also revealed the fact even after the online class is over, they often have to heard the lecture given by their teacher during online class from the video recordings which is provided to them by their respective institutions. Presently, it has also been seen that some respondents are even using electronic devices for watching news, reading electronic books, reading electronic newspapers etc. Hence, from the above discussion, it has become clear that there has been a meteoric rise in the use of electronic devices by the students for different purposes other than online class.

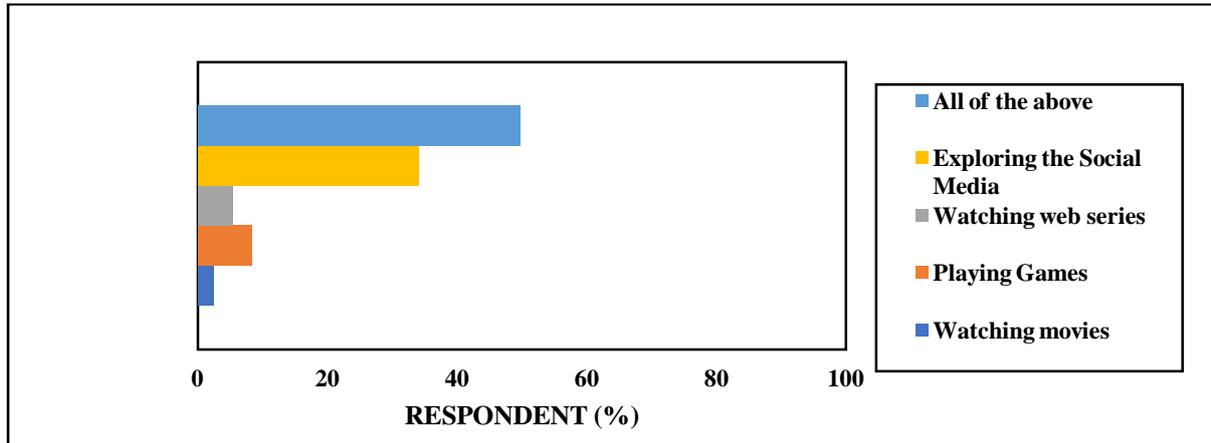


Figure 4: Purpose of use of Electronic Gadget other than Online Class (Source: Primary Survey)

Physical problems of students:

Owing to long term exposure to electronic gadgets, students are facing several problems. Out of 200 respondents surveyed, most of them are having eye problems accounting for about 24.6% of total respondents (Figure 5). 17.4% of respondents are having problems of headache, 9% are suffering from sleeplessness and have developed minor symptoms of Insomnia, 9% are also suffering from shoulder pains and body aches (Figure 5). This incidence of shoulder pain is mainly high among those section who are using laptops or desktops for online class or for other purposes because while using these two devices, the students may have to sit in the same posture for long hours. It has been also found that 24% of respondents are having all the problems as mentioned above while the remaining 16% have not yet developed any of the above-mentioned problems (Figure 5). However, there is high risk that this remaining 16% will also develop minor symptoms very soon if proper steps are not taken immediately.

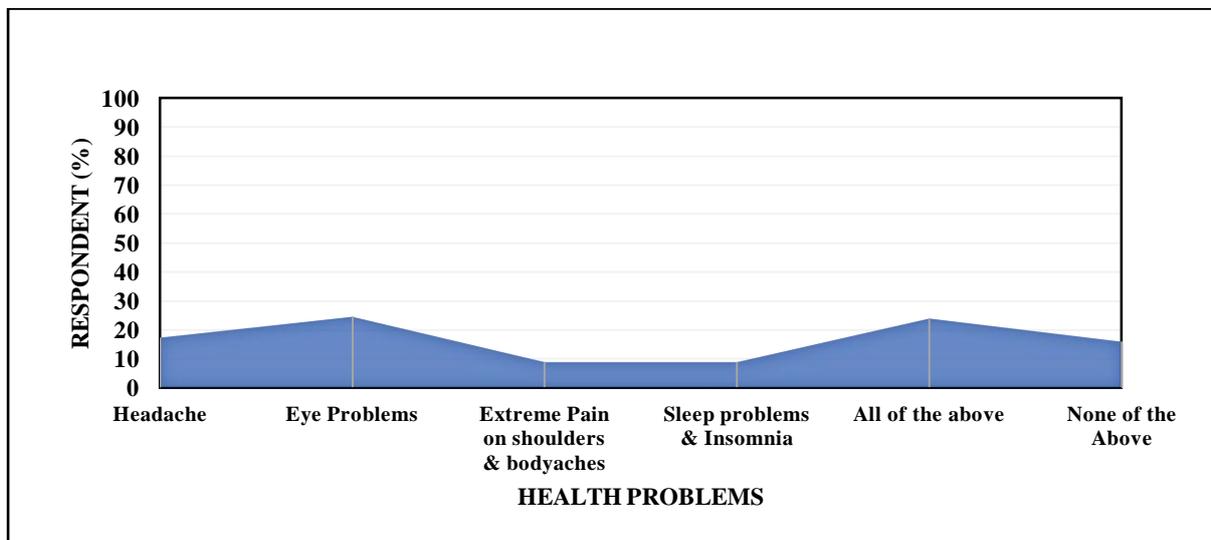


Figure 5: Incidence of physical health problems among students (Source: Primary Survey)

Mental problems of students:

Too much utilisation of electronic gadgets is also increasing the degree of mental problems among students (Sarla, 2020). Out of 200 samples surveyed, 27.5% are suffering from the problem of loss of concentration, 17.4% are suffering from shortness of temper, 7.2% have suffered from the problem of lack of interaction with the family members, 22.2% are having all the above-mentioned problems while 25.7% have no such mental problems so far (Figure 6). However, some respondents falling within this group of 25.7% have started developing minor mental problems which needs to be nipped at the bud.

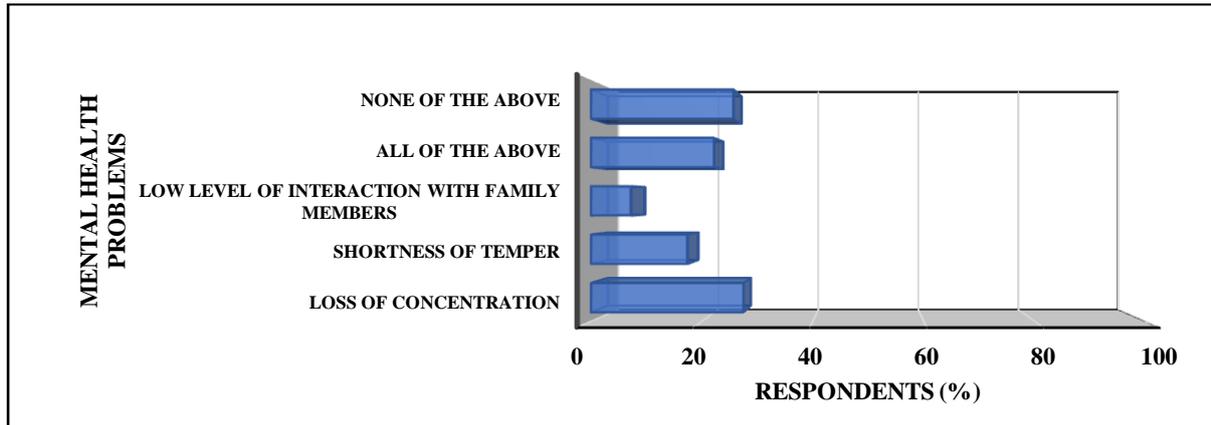


Figure 6: Incidence of Mental Health problems among students (Source: Primary Survey)

Performing daily physical exercise:

In order to keep our body metabolic activity operating properly, physical exercise is very much necessary. Besides, physical exercise also acts as a stimuli and acts as a source of energy. It refreshes our mind and provides us with energy for a fresh start on a new day. The survey revealed that out of 200 samples, 64.7% are engaged in regular physical exercise while the remaining 35.3% are not at all performing any type of physical exercise (Figure 7A). Through telephonic interviews, it was found that most of the respondents who do not perform physical exercise spend their leisure either watching movies, web-series or playing computer games. Some of them also stated that they even have to attend online classes in the evening either organised by their respective institutions or private tutors.

Out of the total sample, 64.7% (129 samples) are performing physical exercises on a regular basis. Out of 129 samples, most of them accounting for 35.9% of the respondents are engaged in doing simple free hand exercise at home (Figure 7B). They are of the opinion that they are not going out owing to a surge in the COVID-19 infection cases since last few months. They are doing jogging on their house roof or courtyards. 29.3% of respondents go out daily for morning walk by maintaining the COVID-19 protocols (Figure 7B). 15.6% of respondents do Yoga while 11.4% are engaged in skipping (Figure 7B). The study also revealed an interesting fact that about 7.8% of the respondents are performing all the above-mentioned physical exercises (Figure 7B) and hence this section is having lesser incidence of physical and mental problems mentioned above. Samples who are not at all doing any type of physical exercise have gained too much weight in these stipulated time period and have developed obesity.

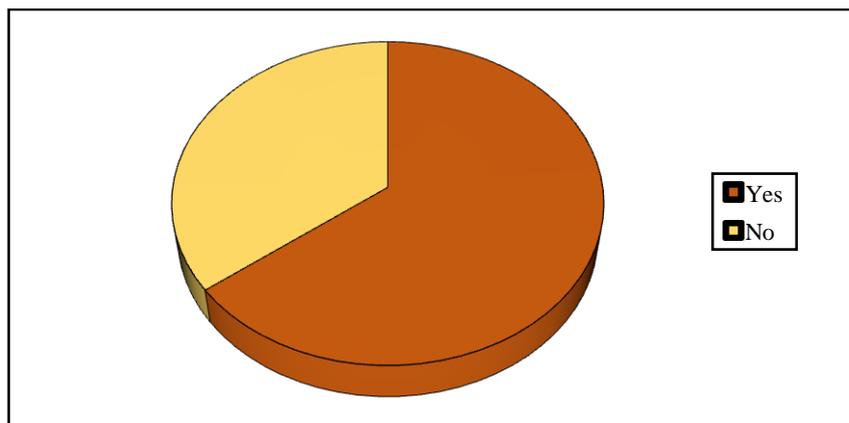


Figure 7A: Incidence of performing physical exercise among students (Source: Primary Survey)

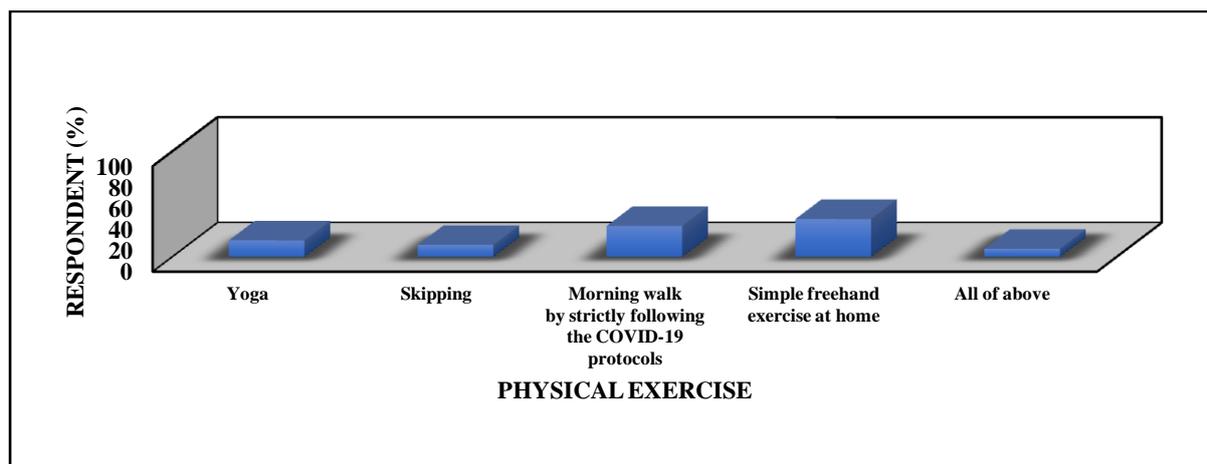


Figure 7B: Type of physical exercise performed by the students

Appraisal of the impact of over utilisation of electronic gadget on Student health through Weighted Score technique:

For a better understanding of the impact of over utilisation of electronic gadgets on student health, weighted score analysis was performed where several problems both physical and mental were given weightage by following the weighted score technique of Aristidis K Nicolopoulous (Goswami A. *et al.*, 2020). This weighted score analysis will help in identification of the degree of seriousness of the problem among the students and will help in developing strategies to bring about the solution of the problems.

1. **Eye problems and hearing problems**- Overutilisation of electronic gadgets have increased the tendency of eye problems among the students. Guardians of the students have stated that many times they have noticed the redness of the eyes of their children and have become worried because in the current situation pink eyes or conjunctivitis have become one very common symptom of COVID-19. Even some students informed that they are also having hearing problems and have developed a ringing sensation in their ears. Some students informed that they often face severe headache due to eye problems. Students using spectacles have informed that they have also noted a rise in the power of their eyes and are suffering from extreme headache. Considering all these facts, this problem has been given the highest weighted score of 82.875 (Figure 8).
2. **Sleep disorder and shortness of Temper**- This is another serious problem that the students are facing due to over utilisation of electronic gadgets. Too much exposure to electronic gadgets have brought about a disorder or disturbance in the sleeping habits. Many of them have been found to have developed mild symptoms of insomnia. Some students while giving interview on telephones opined that earlier they used to go to sleep between 11 pm to 11:30 pm. But at present, they hardly get drowsy by that time and often sleep at late hours of the night. By remaining awake, they surf the internet in their mobile or laptop or watch movies. Lack of physical exercise and body movements can be attributed as one of the reasons. Owing to sleeplessness, many of them have developed shortness of temper and are getting irritated even at petty matters. Many parents informed that they have noted significant change in the behaviour of the students. Considering all these facts, this problem has been given the second highest weighted score of 67.466 (Figure 8)
3. **Developing Obesity**- Since the students are using their electronic gadgets for a long time period, there is hardly any type of body movement. They are also not doing any type of free hand body exercise at home. So, they are gaining body weight and have developed tendencies of obesity. Many respondents stated that they have gained weight since last 1 year after the educational institutions were closed owing to the pandemic. This is not only the problem of students of high schools and colleges but also for small children and even toddlers. Gain in weight and developing obesity have turned out to be a matter of serious concern among guardians as obesity may develop several problems like high blood pressure (hypertension), high blood sugar, heart problems etc. Considering all these facts, this problem has been given the third highest weighted score of 53.34 (Figure 8).
4. **Loss of Concentration**- It has to be kept in mind that the students are not only utilising electronic gadget for their online classes, but also for other purposes also. As a result, increasing incidences of loss of concentration has been noticed. Students are losing the focus and are developing passive mental set up (Hossain, 2019). Many parents being surveyed stated that even when their students sit down for study, they keep their electronic devices switched on. As a result, they cannot fully concentrate in their studies.

Students on the other hand stated that while studying they must keep their electronic gadget turned on as it has in it, the recordings of the lectures given by their teachers, class notes either in pdf or docx format. Thus, this situation has given rise to a clash between the students and their parents where the former states that they must keep their electronic devices to be switched on while studying while the latter is of the opinion that electronic gadgets should be switched off during study hours. Considering all these facts, this problem has been given the fourth highest weighted score of 44.73 (Figure 8).

5. **Ergonomic symptoms**- Developing ergonomic symptoms like muscle imbalances, muscle strain and fatigue is another important effect of over utilisation of electronic gadgets (Choudhary B.S. *et al.*, 2020). While using electronic devices for longer hours either for the purpose of attending online class as well as for other reasons, a student has to sit in one posture for a long hour (Jennifer, 2012). Many respondents are of the opinion that they are suffering from extreme back pain and shoulder joint pain and they fear that they might have entered the early phase of spondylitis. However, this problem is more acute among those who are not at all doing any type of physical exercises. Respondents who are engaged in performing different physical exercises like yoga, skipping, simple free hand exercise or taking short walks during early morning hours and evening in their local area by strictly maintaining the COVID-19 reported no such problems. Considering all these facts, this problem has been given the lowest weighted score of 19.53 (Figure 8).

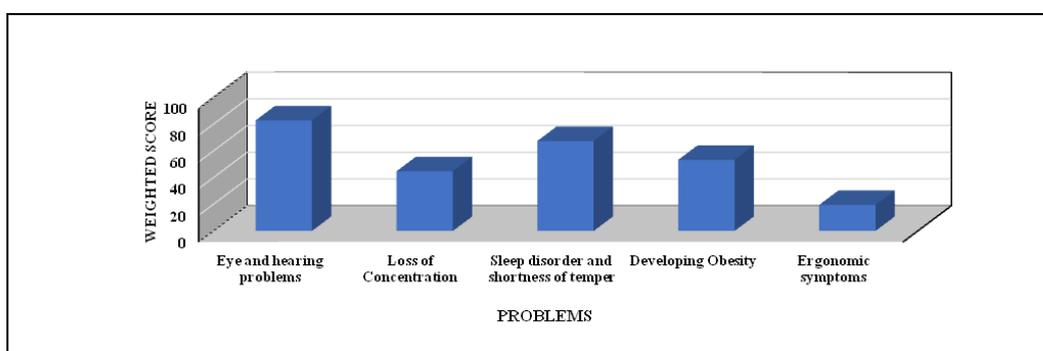


Figure 8: Weighted score of problems faced by students due to overutilisation of electronic gadgets (After Aristidis K Nicolopoulous)

IV. CONCLUSION

There is no doubt of the fact that amidst the COVID-19 pandemic, the use of this electronic gadgets has become more or less inevitable (Sen S. *et al.*, 2020). As already discussed, over exposure to these devices has brought about a number of physical and mental problems among the students. Many ways can be adopted in order to bring about a solution to these problems. Students who are at present using electronic gadgets for a long time period must engage themselves in some free hand exercises and yoga. Yoga and physical exercise not only help in reducing the physical fatigue but also helps to improve the level of concentration among the students. Meditation can also act as an indispensable tool for increasing their level of concentration and can also help them to overcome the problem of shortness of temper. After the online class gets over, the students can keep away their electronic gadgets and have a chat with their family members like parents and especially grandparents who always prefer the company their grandchildren. Sharing their thoughts with family members will help the students to come out of their mental stress as they can share their grief and problems with their family members more easily than anyone. They can also spend their leisure in pursuing their hobbies and also take active participation in performing their daily household chores. If all these steps are followed properly, then it will surely reduce the degree of exposure of electronic gadget in a student life. If a student is relieved of all their physical as well as mental problems, then it will not only help them to excel in their academic career but also will help them to become responsible citizens of our country in the future.

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