AN EVALUATION OF PHYSICAL AND PSYCHOLOGICAL CHANGES IN SCHOOL CHILDREN DURING ONLINE EDUCATION - A CROSS SECTIONAL STUDY

ABSTRACT :

Background : Covid -19 is a great pandemic that keeps people indoors. This has increased the levels of perceived stress among not only adults but also young children. Children are much exposed to online education that keeps them in front of a computer or mobile phone exposing them to virtual education. This causes them to get stressed very easily.

Objective : To evaluate the physical and psychological changes in school children during online education.

Methods : A cross-sectional survey of a sample consisting of 100 school children undergoing online education through their schools was conducted. The participants were administered with a self developed questionnaire consisting of 17 questions. The responses were collected using google forms. Descriptive statistics, frequency analysis and chi square test was used to analyse the data.

Results : The study reported that school children were stressed during online education. Crosstab evaluation was done for the questionnaire. It reported that the majority of the female children said that they feel good about online education and are able to manage the stress.

Conclusions : This study concluded an innovative finding that there is a gradual increase in the level of stress from moderate high among school students after the start of the COVID-19 outbreak.

Keywords : online education, stress, school children, innovative finding

INTRODUCTION :

The outbreak of COVID-19 affected the lives of people and society as people were asked to self-quarantine in their homes to prevent the spread of the coronavirus. The lockdown had serious implications on physical and mental health which results in psychological problems including frustration, stress, anxiety and depression[1]**, Because of this coronavirus, they closed schools all over the world to avoid spreading of the virus and after a few months, they started conducting online classes**[2]**,. Online learning is the mode of telecommunication technology where the information regarding academics is delivered through the internet. The greater advantage of online education includes making interaction between students and teachers through the asynchronous and synchronous mode of learning**[3]**. In 2004, Richard examined the difference between the academic achievements of PG students and as a result, students on average did better and showed their best performance in the online learning mode. Age and gender do not appear to moderate performance except for those under 33 who did their best in online mode of education**[4]**. Terrell made a study on 159 doctoral students regarding online education and as a result, students are able to adapt themselves for their success**[5][6]

Online learners are likely similar to traditional classroom learners in where their self-efficacy comes from. Physiological states are the last source of information that can have a direct effect on learners' self efficacy. When people judge stress and anxiety, they depend on their state of[7]**physiological energy or tension**[8]**.**[9–11]

A research was conducted among 30 students of mulawarman university via telephone in the year 2020. After the interview they came to know that the students get bored, have considerable anxiety and their mood swings due to lots of activities and assignments and as a result, they came to know that the students who are all attending

online classes are mentally affected[12][13]**. Strasberger has noticed some positive effects of the internet and modern technology. It includes increased academic achievements and increased social connections which enhances well-being**[14][15–26]**. In the present world, Children are much exposed to online education that keeps them in front of a computer or mobile phone, exposing them to virtual education. This causes them to get stressed very easily**[20] **.** [27–31] **So the aim of the present study is to evaluate the physical and psychological changes in school children during online education. All analyses were done by using the SPSS software version 23.**

MATERIALS AND METHODS:

Study design: The data for this study were obtained using a cross-sectional survey, which was distributed during COVID pandemic lock down where the schools have not opened to keep the children away from the risk of coronavirus disease.

Methods: A cross-sectional survey of a sample consisting of 100 school children, out of which 55 were female and 45 were female undergoing online education through their schools was conducted. The participants were administered with a self developed questionnaire consisting of 17 questions to evaluate the levels of perceived stress, their perception about online education, their educational tool used, their duration of time spent on online education and its effectiveness, their relaxation methods etc . The responses were collected using google forms and the statistical analysis used was frequency analysis and chi square test.

RESULTS:

A total of 100 school children participated in the study. The present study revealed that 5% of the population said that they feel excellent about overall online education, 9% of the population says that they feel very good about overall online education, 54% of the population said that they feel good about overall online education, 12% of the population said that online education is fair and 20% of the population says that online education is poor (Fig 1). 33% use laptops for online education, 9% use desktop for online education, 13% use tablets for online education and 45% use smartphones for online education. 33% of the population spend less than 2 hours each day on online education, 30% of the population spend time between 2-4 hours each day on online education, 24% of the population spend time between 4-6 hours each day on online education and 13% of the population spend time between 6-8 hours. For 20% of the population, online class is not at all effective, for 23% of the population, online class is slightly effective, for 48% of the population, online class is moderately effective, for 9% of the population, online class is very effective and for 2% of the population, online class is extremely effective (Fig 2). 17% says that school is not at all offering them anything to learn from home, 63% says that school is slightly offering them to learn from home and 22% says that school is very helpful in offering them to learn from home.

13% relax themselves by playing indoor after online class, 21% relax themselves by playing outdoor after online class, 42% relax themselves by watching tv after online class, 13% relax themselves by reading books after online class, 4% and 9% relax themselves by eating junk foods and stay silent at home respectively(Fig 3). 46% of the population enjoy online education and 56% do not enjoy online education(Fig 5). 30% say that online education is very stressful, 42% say that they are able to manage stress and 30% say that they have no stress(Fig 4). 25% of the population says that they always have snacks after online class, 69% if the population says that they sometimes have snacks after online education and 8% of the population says that they won't have snacks after online education.

Cross tab evaluation

The association between age groups and how stressful online education was associated. Results reported that the majority of the children were stressed mildly and were able to manage and the value was statistically significant. Chi square test p value = 0.004 (

p<0.05). The association between gender and feeling overall about online education was analysed . Majority of the female children said that they feel good about online education and the value was statistically significant Chi square test p value = 0.000 (p<0.05)

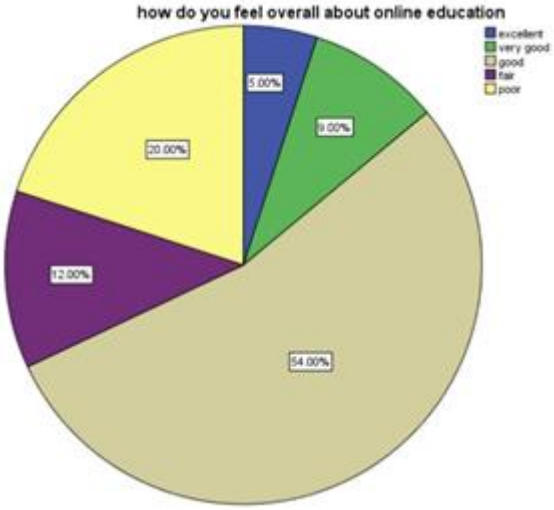

Figure 1: Pie Chart showing responses to the question about what the school children feel about overall online education. Majority of the respondents have responded as good (54%). Blue colour represents excellent, green colour represents very good, brown colour represents good, purple colour represents fair and yellow colour represents poor.

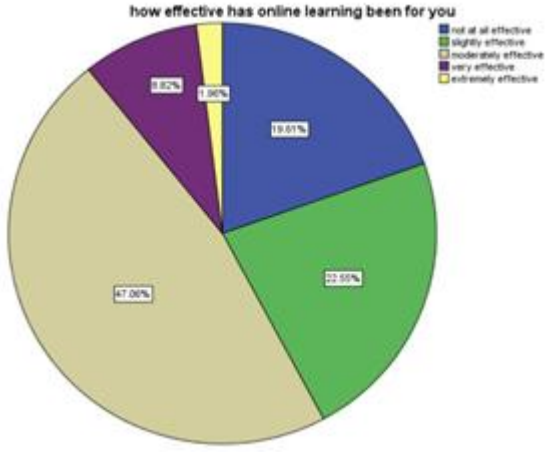

Figure 2: Pie chart showing responses to the question about how effective online learning has been for them. Majority of the respondents have responded as moderately effective (48%). Blue colour represents not at all effective, green colour represents

slightly effective, brown colour represents moderately effective, purple colour represents very effective and yellow colour represents extremely effective.

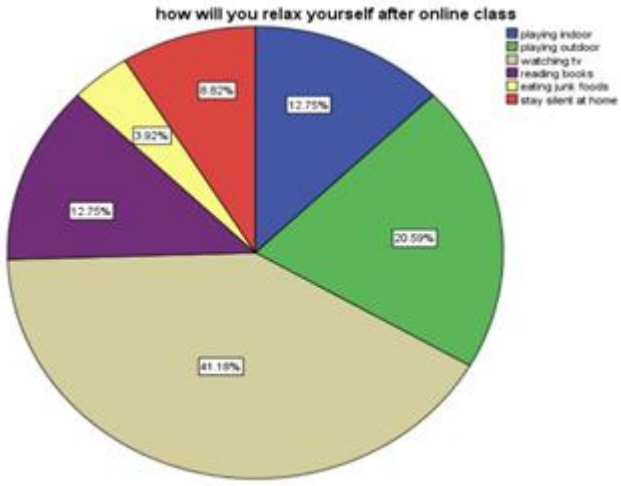

Figure 3: Pie chart showing responses to the question about how school children relax themselves after online class. Majority of the respondents have responded by watching tv (41%). Blue colour represents playing indoors, green colour represents playing outdoors, brown colour represents watching tv, purple colour represents reading books, yellow colour represents eating junk foods and red colour represents staying silent at home.

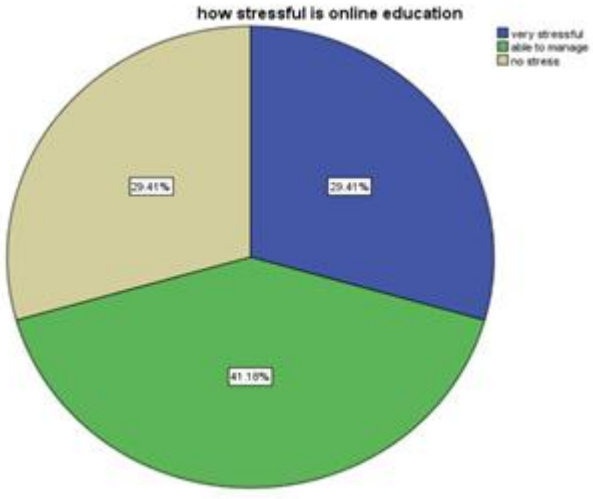

Figure 4: Pie chart showing responses to the question about how stressful is online education. Majority of the respondents have responded as able to manage (41%). Blue colour represents very stressful, green color represents being able to manage and brown colour represents no stress.

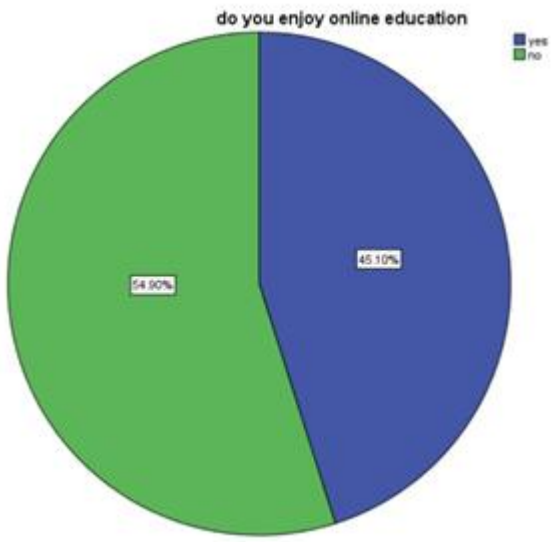

Figure 5: Pie chart showing responses to the question that they enjoyed online education. Majority of the respondents have responded as No (55%). Blue colour represents Yes and green colour represents No.

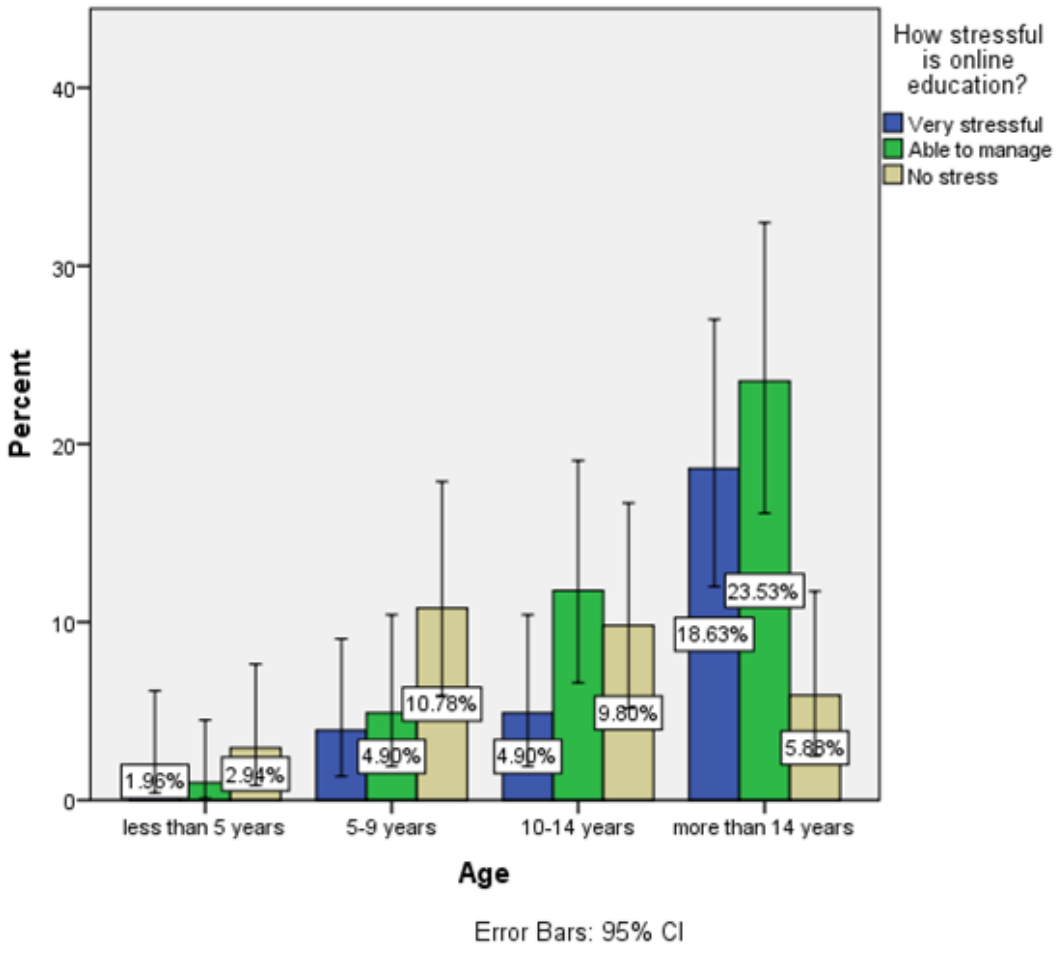

Figure 6: Bar graph depicts the association between different age groups of school children on how stressful they were in online education. The X axis represents different age groups of the school children and the Y axis represents the number of responses. Blue colour represents that online education is very stressful, green colour represents that they are able to manage and brown colour represents that they didn't feel any stress during online education. It is evident that the majority of children in the age group of more than 14 years experienced more stress compared to other age groups and the association was found to be statistically significant .Pearson chi square value = 0.004 ($p<0.05$).

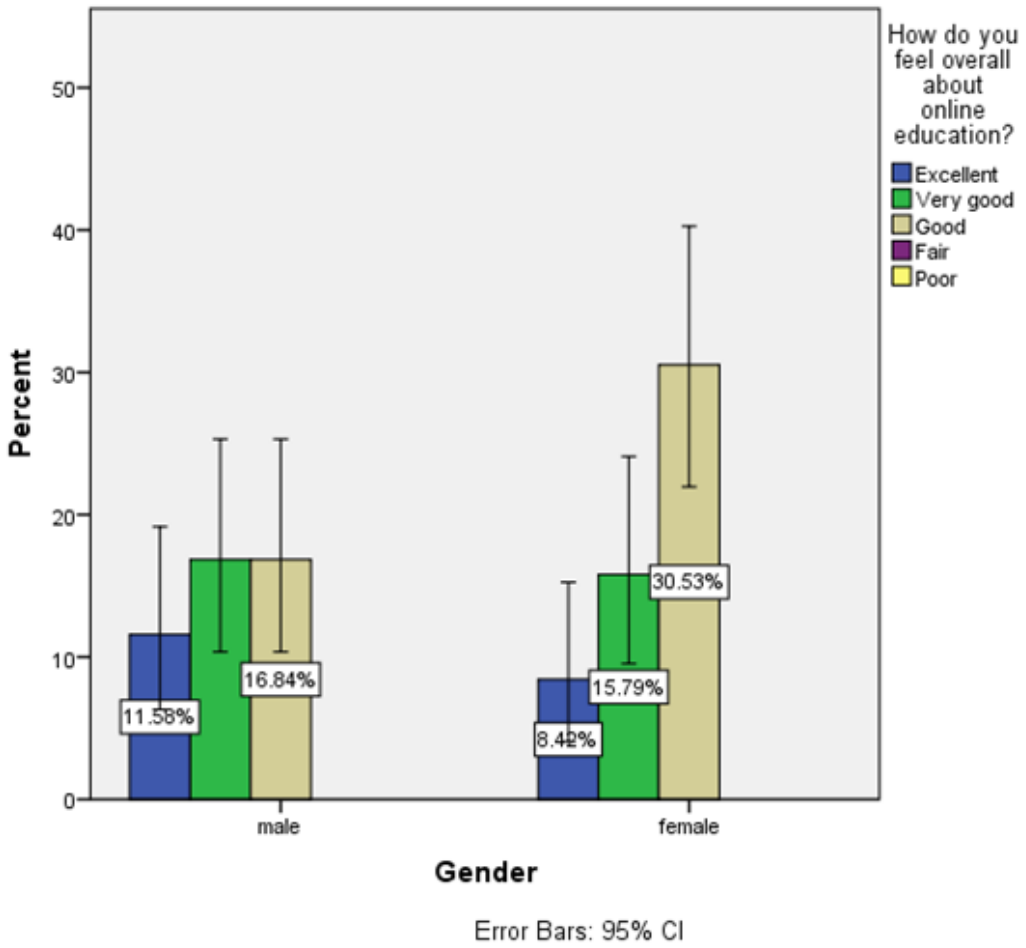

Figure 7: Bar graph depicts comparison of responses between gender of school children on how they feel overall about online education. X axis represents gender and Y axis represents the number of responses. Blue colour represents that overall they feel that online education is excellent, green colour represents that overall they feel that online education is very good, brown colour represents that overall they feel that online

education is good, purple colour represents that overall they feel that online education is fair and yellow colour represents that overall they feel that online education is poor. It is evident that the majority of female students felt good (30%) and 11 % excellent about their overall experience about online education compared to males and the association was found to be statistically significant. Pearson Chi square value = 0.000 ($p<0.05$).

DISCUSSION:

A classroom is a place where the teacher holds the student with great accountability in their course-work. But online courses are conducted in an intention that a student requires self motivation and self-discipline compared to a classroom-based environment. [2–4]**. Online courses involve setting our own goals, tracking progress and meeting deadlines that seem to be difficult. In the present study, the students undergoing online education are prone to more academic stress, lack of concentration, increased stress symptoms like anxiety, irritation, depression etc**[5,8,32]**.**

Technology also adds on to the visual experience by incorporating animations that can be used interactively for effective learning and communication. This also makes the children prone to problems with eyesight and other communication problems due to small screen concentration for longer hours is[12,14,33] **Previous studies reported that the mental health of people during the pandemic have studied general populations in other regions of the world. The study reported that the outbreak of the virus and the development of sudden control measures may cause excessive fear and social isolation in families**[32,34,35]**. Another reports suggested that University students perceived significantly higher levels of stress compared to students from intermediate and secondary schools. Researchers suggest that other sources of stress include the frequency and performance on examinations, broad curriculums, parental pressure, loneliness, etc**[16,36,37]**.**

LIMITATIONS OF THE STUDY :

The limitations of the study is that the study population involves children in the age group of 4-15 yrs and it does not include the whole population.

CONCLUSION :

Thus the study concluded that online courses created for more autonomy and intellectual freedom among students have actually burdened them with physical and psychological problems.

Ethical Approvals: we conducted our research after obtaining proper IEC approval.

Consent

As per international standard or university standard, patients' written consent has been collected and preserved by the author(s).

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