

Adolescent learning and health behavior during the COVID-19 pandemic

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Abstract

Background: COVID-19 pandemic, in its first year, forced restrictions on social, economic, work, education, and religious activities. All activities were diverted and conducted online to avoid exposure to the coronavirus. These online activities had an impact on students, particularly learning behavior and behavior related to health aspects.

Objective: This research aimed to analyze adolescent learning and health behavior.

Methods: A descriptive method with a cross-sectional study design was used. The research was conducted from November to December 2021 among students of the Faculty of Public Health, Halu Oleo University, Kendari City, South East Sulawesi Province, Indonesia. Data were collected using online questionnaires with Google Forms and were processed using epi info.

Results: The impact of the COVID-19 pandemic on adolescents from the aspect of learning behavior was, during the online learning process, many adolescents experienced constraints, such as the lack of optimal internet networks in their areas in rural areas, the limited quota due to the pandemic also had an impact on the economy of students' parents, power outages and unfavorable weather condition. In addition, changes in adolescent learning behavior became more skilled in using various applications. In terms of health behavior, there was a change in perspective and behavior, which is more sensitive to health, including dietary habits, exercise pattern, and readiness to face the new normal.

Conclusion: The students got difficulty learning technically due to online learning, but there were also many positive impacts, namely increasing skills related to the use of technology, social communication, and health behavior.

Keywords: COVID-19; pandemic; learning behavior; health; new normal; online

Background

COVID-19 as a global pandemic was declared by World Health Organization (WHO) on March 11, 2020, due to the widespread COVID-19 outbreak (Tosepu et al., 2020). WHO asks countries, including Indonesia, to take action to prevent and

control COVID-19. In the course of the pandemic, it affected all aspects in order to many changes occurred. The same thing is explained by (Orfan & Elmyar, 2020) that there is a gap in a population that has a high income can fulfill access to technology and follow a digital education (Ulfa & Mikdar, 2020).

The COVID-19 pandemic has affected many things other than global deaths, namely in the economic sector, and has impacted other fields, including education. Constraints in education related to access to technology, information, and media where there is a gap in a population with a high income can fulfill access to technology and attend education digitally (Liu, Li, Zhou, Guan, & Xiang, 2020). One of the new policies in the field of education during the pandemic is online learning (home learning).

Online learning is conducted according to the general guidelines for the implementation of education during the COVID-19 pandemic period. The guidelines are in accordance with the Circular of the Minister of Education and Culture and take into account the circular of the governor of Southeast Sulawesi regarding the Protocol for Emergency Response Status for the COVID-19 Pandemic Disaster in the Education Environment of Southeast Sulawesi Province. Full online learning is a new thing, so some students get difficulty. The use of technology itself is also a new thing that requires adaptation, while some areas experience network constraints. Online learning strategies provide different conditions; some students find it challenging to catch the material and learn (Firman & Rahayu, 2020)

The policy of online/home learning requires adolescents, in this case, the students, to adapt immediately to the online learning system using various kinds of technological assistance that has developed quite rapidly in the current era. This adaptation effort must be balanced with supervision, guidance, and support, both physically and psychologically, to maximize the positive impacts which can be obtained and minimize the adverse effects that will be caused, such as constraints in adjusting to the relatively new learning system. The positive impact of this kind of learning process includes forming mental and formal discipline, providing facilities for reinforcement, making the assessment process by the lecturer becomes more optimal, and interactions between students can be directly observed by the lecturer, especially in the process of receiving/listening to the material. Not only positive impacts but negative impacts are also felt by students and lecturers, such as feeling bored in learning, stiff and classic online learning, and learning that only applies in one direction (monotonous), creating opportunities for decreasing

creativity and innovation (Argaheni, 2020; Jamie, 2020)

Online learning requires adjustments so that they do not constrain students. Research on students shows that the constraints experienced in online learning include the lack of data and signal quota packages and technical learning, which burden students with many assignments with short deadlines (Susanto, 2020). In addition, most of the students who attend the lectures are from "overseas" from the district or other provinces, even from out of the island. Students experience the impact directly or indirectly, including in terms of finances. Some students cannot take online courses because they do not have any money to buy internet quota, and some of them also feel the indirect impact in the form of a decrease or even discontinuation of their allowance because their parents cannot work any longer. The limited allowance makes them eat irregularly and eats modestly.

Research needs to be conducted to analyze the changes in learning activities, social interactions, and health behavior due to the COVID-19 pandemic. The urgency in this research is the COVID-19 pandemic is a new thing, so it is necessary to study the impact experienced so that efforts can be designed to overcome difficulties due to the impact of COVID-19 as an effort to adapt to new habits. The pandemic still exists, but some activities must continue, for productivity does not stop. This research hoped to contribute to the behavior of adopting new habits.

Methods

Study Design

A descriptive method with a cross-sectional study design was used in this study. The study was done in the Public Health Faculty, Halu Oleo University, Kendari City, South East Sulawesi Province, from November to December 2021.

Samples

The samples in this research were the students of the Public Health Faculty, Halu Oleo University, starting from the class of 2018, 2019, and 2020 until the new class of 2021. A total of 140 samples were taken using the purposive sampling technique. The inclusion criteria of the samples include 1) being an active student, 2) being available to be a respondent

(sign the informed consent), 3) understanding Bahasa Indonesia, and 4) could communicate.

Instrument

Three sets of validated questionnaires were used: the demographic questionnaire, the impact of the COVID-19 pandemic on adolescents from the aspect of learning behavior, and the aspect of health behavior. The demographic data questionnaire contains questions related to age, gender, and class.

Data Collection

Data were collected using online questionnaires using Google Forms and processed using epi info.

Data Analysis

Descriptive statistics were used for statistical analysis. In addition, univariate statistical analysis was performed in the form of frequency distribution.

Ethical Consideration

Ethical consideration was obtained from the Ethical Committee of the Indonesian Public Health Association (IAKMI), South East Sulawesi, Indonesia. Each respondent has obtained appropriate informed consent prior to data collection.

Results

Characteristics of Respondents

Table 1 shows that the largest number of respondents aged 20 years old (33.58%) and those aged 16 and 23 were the lowest percentages (0.7%). While **Table 2** shows that the number of female respondents was more than the number of male respondents, with a percentage of 85.7% for women.

Table 1 Distribution of respondents based on age

Age	f	%
16	1	0.7
17	12	8.57
18	28	20
19	30	21.45
20	47	33.58
21	19	13.58
22	2	1.42
23	1	0.7
Total	140	100

Table 2 Distribution of respondents based on gender

Gender	f	%
Male	20	14.3
Female	120	85.7
Total	140	100

Learning Behavior

Based on **Figure 1**, the research results show the condition of online learning during the pandemic: 93.6% of students experienced constraints during online learning during the COVID-19 pandemic.

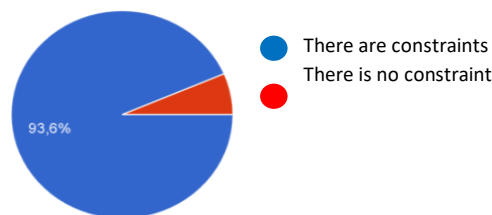


Figure 1 Online learning conditions during pandemic

Based on **Figure 2**, the research results showed several things related to new skills during online learning. The highest percentage is the skills in using new applications (37.1%), followed by online reference accessing skills (30%) and video editing skills (27.1%).

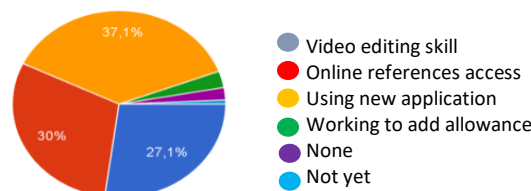


Figure 2 New skills during online learning

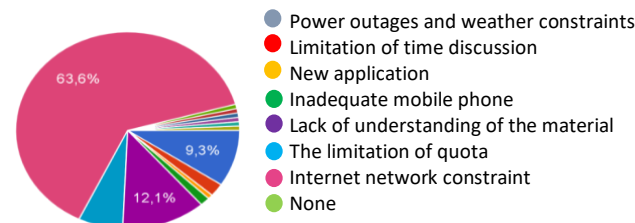


Figure 3 Constraints of online learning

Figure 3 shows that the constraints of online learning during the pandemic for students are the new application constraint (0.7%), inadequate mobile phone (1.4%), and limitation of time

discussion (2.1%). In addition, many students have conditions in the limitation of quota (6.4%), lack of understanding of the material (12.1%), and internet constraints (63.6%).

Health Behavior

Table 4 shows that 39.2% were easier to suspect when someone was sick or showing pain symptoms, 36.4% were looking for self-treatment if they felt uncomfortable, and 24.2% were going to the doctor immediately if they felt unwell. Overprotective behavior “easier to suspect” occurred while someone was sneezing, coughing, or feeling sick, so there was a sense of anxiety and thought that the person might infect the COVID-19.

Table 4 Distribution of overprotective behavior during the pandemic

Overprotective behavior	f	%
It's easier to suspect when someone has symptoms of pain	55	39.2
Look for self-treatment if you feel any symptoms of pain	51	36.4
Go to the doctor immediately if you feel unwell	34	24.2

Table 5 Distribution of changes in the dietary habit during the pandemic

Dietary habit	f	%
Reduced	44	31.4
Constant	43	30.7
Pay more attention to dietary habit	53	37.8

Table 5 shows that 37.8% were paying more attention to dietary habits, and 30.7% had the same dietary habit.

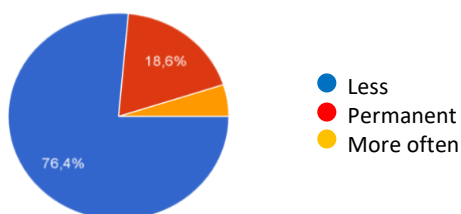


Figure 4 Changes in exercise pattern

Based on **Figure 4**, the research results showed the changes in student exercise patterns during the COVID-19 pandemic: 76.4% of students did less exercise activities, and 5% did exercises more often.

Discussion

Learning Behavior

Online learning conditions during the pandemic

The results showed that as many as 93.6% had constraints, while students who did not experience constraints during online learning were 6.4% in taking online learning. Most students said that the material was more challenging to understand, and they felt more comfortable in the face-to-face interaction. All courses were given online, allowing for more independent learning so that students felt that they had more work to do and worked more in front of a laptop or mobile phone, so they got tired of their eyes. The cost of the internet package was required more, both for attending lectures and collecting assignments. In contrast, they were also indirectly affected economically. Learning was conducted online, so the lecture schedule was not more flexible, which sometimes caused it to be shown outside the lecture schedule. Online learning had limitations on practical learning because it could not be conducted directly in the field. In addition, those who used to make presentations in front of the class and discussions could not be held any longer (Pokhrel & Chhetri, 2021; Su, Du, & Jiang, 2021).

New skills during online learning

During the pandemic, all campus facilities were closed, including the library, one of the student learning references. Because everything was held online during this pandemic, the access to online references on campus was as much as 30%. In contrast, the reference sources often used by students were Google Scholar and the National Library.

Learners such as students and colleagues must have skills in using applications that help them learn during this pandemic. Therefore, the use of applications for online learning is beneficial. The research results show that using applications for online learning is 37.1%. The applications most frequently used in the learning process are Google Meet and Zoom. Google Meet is used for learning, office needs, and others. This platform is free so anyone can use it without a time limitation and a limitation on the number of participants. In this Google Meet application, we can communicate directly with anyone by video. In addition, users do not need to download the application; they can

instantly join meetings just by clicking on the link provided (Zainurrahman, Agustin, & Ma'rufi, 2021). In contrast to the live streaming zoom media, this media is also the second favorite of students after google meet because they think that zoom media is easier to understand the material because all senses can be functioned to see visual graphics and audio lectures from lecturers, more detailed presentation of material and it is clear because it is broadcasting live, more interactive during discussions and questions and answers section because it can do face-to-face interaction like the condition before the pandemic, they can feel the presence of a lot of friends in lectures and make it easier to prove the attendance of each course (Ferdiana, 2020).

Students more often have to make/edit videos, in this case, to increase students' knowledge and skills in creating/editing a video. At Public Health Faculty, Halu Oleo University, video editing skills are 27.1%, making videography by a smartphone application.

Constraints of online learning

The online learning process had several constraints. Based on the aspect of constraints, there were two possible causes for the emergence of conditions, namely internal and external. Internal barriers include physical and psychological obstacles, while external aspects include lecturers, facilities, families, and other activities. The results show that the top 3 constraints for online learning are inadequate internet networking at 63.6%, lack of understanding of lecture materials at 12.1%, and the limitation of the quota at 6.4%.

The research results show that the constraints adolescents experience, which are fundamental, are constraints regarding internet networking. In urban areas, there are many internet service providers with adequate internet networking capabilities to support the online learning process. However, in rural areas, there are very few choices of internet service providers. From what is available, the internet network quality is inadequate, so it does not support online learning (Andiarna & Kusumawati, 2020). The questionnaire results show that most of the respondents complained about the quality of the internet network and the high price of internet packages. One of the solutions they take to overcome internet networking constraints is to leave the house and go to higher places, and some go to

more crowded areas and are considered to have better network quality.

The following constraint in online learning is the constraint of learning services lecturers provide students. Respondents admitted that they experienced less than optimal learning services. Some students said the material was more difficult to understand and felt more comfortable in face-to-face interaction. Most of the courses given online are based on independent learning so that students feel they have more assignments to do and stay more in front of a laptop or a mobile phone so that they get tired of their eyes. In addition, the cost of internet packages is required more for attending lectures and collecting assignments. Meanwhile, those who are economically affected must help their parents work so that they have less time to study.

Although difficulties in understanding the learning can be overcome by actively asking students, during online learning, students tend to be passive and sometimes do not respond well. For example, during a learning video conference, most students still turn off the camera or off the cam so that the lecturer cannot monitor and ensure that students take the lecture seriously. In addition, learning is mostly conducted from home certainly brings a different atmosphere compared to learning conducted on campus.

Health Behavior

Overprotective behavior

The coronavirus outbreak has become a social reality for the world, including Indonesia. It is undeniable that the news of the coronavirus that had infected Indonesia had an impact on the psyche of the people who became more over-protective of the surrounding environment. The fear of the coronavirus influenced each individual's social attitudes of each individual; where people are very suspicious of others who got cough, sneeze or look pale around the environment. Moreover, there were not a few violent conflicts in the community (Mahyuddin, Ilham, & Rusdi, 2020).

This research shows similar results, such as most respondents feeling anxiety and behaving overprotectively due to the information received. This research also was in line with a previous study, which showed that the circulation of information

about the coronavirus in Indonesia would impact people's attitudes to become more overprotective towards the surrounding environment, and fear of coronavirus will influence the social attitudes of each person. We will more easily be suspicious of people who cough, sneeze, or look pale around us. In addition, there are bad views in the form of stigma and discrimination against people categorized as ODP, PDP, suspected COVID-19, positive COVID-19 patients, recovered patients, and medical personnel (Fajar, 2020).

This research is also in line with a previous study that wrote that the circulation of the news of the coronavirus that had infected Indonesia had an impact on people's attitudes and became more overprotective of the surrounding environment. We would be more likely to decide to stay away than to ask how things are or just show other small forms of concern. These assumptions are still speculative but do not rule out the possibility that the threat of the coronavirus will not only take away one's health but also grasp us of our social sense towards others (Ulfa & Mikdar, 2020). Previous research showed that several factors influence an individual's overprotective behavior; it is essential to understand these factors to deal with outbreaks and pandemics effectively (Zainurrahman et al., 2021).

Changes in dietary habits

Diet is the arrangement of the type and amount of food consumed by a person or group of people at a certain time consisting of the frequency of eating, the type of food, and the portion of the meal. A balanced menu needs to be started and well-known so that balanced eating habits will be formed in the future. Eating habits is a term used to describe habits and behaviors related to dietary habits. Irregular and unhealthy dietary habits can cause disturbances in the digestive system. A previous study (Herianto, Lala, & Nurpasila, 2021) stated that the number and frequency of meals needed to be considered to ease the work of the digestive tract, where it is better to eat three times a day in small portions. In addition, this type of stimulating food needs to be considered to avoid irritating the gastric mucosal layer (Herianto et al., 2021).

The research conducted by students at the Faculty of Public Health of Haluoleo University, attended by 140 students, showed that the pandemic had an impact on many aspects of daily life. One of them

affected the student's dietary habits. Based on the research results, 37.8% paid more attention to dietary habits. This is because maintaining a healthy, nutritious, and balanced diet is crucial to support a strong immune system so as not to contract the COVID-19 virus, in addition to preserving a healthy, nutritious, and balanced diet. However, some students have poor dietary habits caused by bad behavior, irregular activities because they are not able to manage time, and also a laziness factors because they prefer to sleep or what is commonly called "laying down" (Erawati, Sugandini, Juliani, & Tarini, 2021).

Changes in exercise pattern

The pandemic period forced the implementation of a healthy lifestyle, both related to the health protocols as a prevention of the transmission of COVID-19 as well as activity restrictions, one of which was the impact on changes in exercise patterns. In this research, changes in student exercise patterns were generally reduced; students who previously had an exercise program continued to exercise at home, some students who were athletes felt less enthusiastic because they could not participate in matches, and some sporting events were delayed. Exercises or sports programs can be held so that the body is in shape. However, exercise needs to be held safely because exercise is held to increase immunity and endurance (Ulfa & Mikdar, 2020).

During the COVID-19 pandemic, it is recommended to stay active and exercise even in a limited space to preserve the body's immunity to prevent exposure to COVID-19. Therefore, physical activity can be held at home with a variety of physical activities in moderate intensity, such as walking at home, strength training, flexibility, cardiopulmonary endurance, and a combination of these exercises (Abas, Asma, Zul, Irmawati, & Alhajar, 2021; Wong et al., 2020).

Conclusion

From this study, it can be concluded as the following: (1) During the online learning in the pandemic period, many adolescents experienced obstraints, such as the lack of optimal internet networks in their areas especially in rural areas, lack of understanding of learning material, limitation of quotas, power outages and unfavorable weather; (2) Adolescents during the pandemic by the implementation of online

learning have new skills such as in accessing online references, editing videos and using applications which were never known or used before; (3) The COVID-19 pandemic is giving people a change of perspective that makes it easier to be suspicious of people who are sick; start to look for self-treatment in order to prevent illness and immediately check the body if there are complaints to the health care facilities; (4) Changes in dietary habits are seen by paying more attention to dietary habits in preventing negative possibilities for our bodies; (5) Changes in exercise patterns among adolescents are decreasing due to not being able to manage schedules and prefer to relax; and (6) Most of the adolescents, in this case the Students of Faculty of Public Health as respondents, are ready to go through the new normal by preparing many things, starting from increasing body immunity, looking for information on new adaptations and so on.

From this study, the suggestions include (1) Changes in learning behavior during the pandemic that are positive in the form of mastering new things from various applications are still being improved to become good skills. The technical constraints found by online learning can be proposed for blended learning; and (2) Good health behavior during the pandemic is still conducted continuously, while negative health behavior is improved by starting to exercise regularly in involving peer groups.

Declaration of Conflicting Interest

There is no conflict of interest to be declared.

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Author Contribution

The corresponding author contributed solely in all stages of the study.

Author Biography

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