

CHANGES IN LIVING CONDITIONS, LIFESTYLE, AND BEHAVIORS OF HIGH SCHOOL STUDENTS DURING THE COVID-19 PANDEMIC IN VIETNAM

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Abstract. This study was performed to clarify the impacts of the COVID-19 pandemic on high school children's living conditions, lifestyle, living and studying habits. Cross-sectional research was conducted on 2369 high school students, selected from several high schools in Hanoi, Thanh Hoa, Thai Binh, and Dak Lak provinces. The result showed that during the COVID-19 epidemic period, living conditions were changed, such as isolation in the living area (22.1% of participants), reduced family income (35.9% of participants' fathers and 37.3% of participants' mothers salary decreased). Most children must switch to online learning (67.6%), and children tended to sleep later and wake up later (16.7% and 11.2%). Children tended to eat more meals and much food each meal than before. The percentage of children who spent over 3 hours/day using electronic devices increased during the COVID-19 epidemic (54.8% compared to 33.8% before). Our findings indicated that the COVID-19 pandemic had adverse effects on children's living conditions, lifestyles, and habits.

Keywords: COVID-19, living conditions, lifestyle, behaviors, high school children.

1. Introduction

The COVID-19 pandemic has caused a lot of loss to humanity in the past 2 years. According to WHO statistics, worldwide, more than 400 million people were infected and nearly 6 million people died related to SARS-CoV-2 as of February 18, 2022 [1]. According to the report by the Ministry of Health of Vietnam on the same day, Vietnam has more than 2.6 million people infected and nearly 40 thousand people died related to COVID-19 [2].

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Several drastic measures such as banning mass gatherings, closing non-essential production and business activities or services, temporarily quarantining non-essential services, and transition from the traditional methods of teaching in schools and training institutions to online studying were implemented to prevent the spread of the disease in many countries, including Vietnam. These measures proved effective in controlling the epidemic situation, but they also caused negative impacts on the economy and people's quality of life. A study by Tran Xuan Bach in 2020 on 341 people showed that 66.9% of people lost their income because of the COVID-19 epidemic. According to the General Statistics Office of Vietnam, as of April 2020, nearly 5 million people lost their jobs because of the epidemic [3].

Measures adopted during the COVID-19 pandemic can have a dramatic impact on children's lifestyle behaviors, and physical and mental health [4-6]. High school students are concerned with the puberty period and often experience psychological, lifestyle, and social relationship changes; at the same time, they are required to prepare for important exams including the National exam, and the results would decide their entrance to universities. Therefore, high school students are easily affected by changes in socio-economic conditions in the context of epidemics. According to UNESCO 2020, more than 87% of students worldwide have been affected by the closure of schools, as a result, children have reduced opportunities to interact with friends and they often feel isolated or bored [7]. There have been many studies by authors around the world assessing the impact of the COVID-19 epidemic on children, such as the study by María Medrano in 2020 [8] or Dongling Yang in 2021 [9]. However so far not many articles about the impact of COVID-19 on the living conditions, lifestyle, and behavior published in Vietnam, especially among high school students. Hence this study was performed to clarify the impacts of COVID-19 and the results can be used for applying appropriate interventions to improve children's quality of life.

2. Content

2.1. Participants and data

2.1.1. Participants

Participants have recruited a group of high school students aged 15 - 18 years old who are studying at several high schools, randomly selected from populous provinces in Vietnam such as Hanoi, Thanh Hoa, Thai Binh, and a province with the lowest population density in Vietnam as Daklak. Written agreement to participate was taken by the child and his parents and was collected by teachers at schools. The enumerators trained online students, who agreed to participate in the research, providing detailed instructions on how to answer the questionnaire via the online link. Then, the participants were sent a link to take the online survey. Children with limited health or unwillingness to provide information would be excluded from the study. Totally, 2369 high school children (61% boys), aged 16.9 ± 1.8 years (15 - 18 years old) were taken part in this study. Most of the participants lived in the countryside (65%), 23% of children lived in the urban and only 12% of participants lived in the mountain.

2.1.2. Data

Data collections

An online survey was conducted, that included 46 questions about the child and parents' career characteristics and the changes during the period of COVID-19, as well as changes in living and studying habits of high school students. Children's emotions and responses and the extent of the impact of COVID-19 were also estimated. All questions were taken anonymously for the purpose of collecting the most authentic data. On average, it takes about 15 minutes to complete the questionnaire. The data was collected and processed directly by the research.

Data analysis

The data were collected and managed using software Excel 2016 and SPSS version 20.1.

2.2. Results

2.2.1. Participants' characteristics

The children's general and family characteristics were shown in Table 1.

Table 1. Family characteristics of high school children participated in the study

Characteristics		n	%
Personal status of high school students related to COVID-19	F0	0	0
	F1	14	0.6
	F2	200	8.5
Students with diagnosed chronic disease		157	6.7
Characteristics of living area	Currently epidemic area (implemented social distance)	522	22.1
	Quarantine was implemented	303	12.8
Children was living with	Father	2049	86.7
	Mother	2214	93.7
	Grandfather	343	14.5
	Grandmother	647	27.4
	Siblings	1872	79.3
	Relatives	151	6.4
	Others	62	2.6
Changes of father's jobs related to COVID 19	Unchanged	104	43.7
	Unknown	412	17.4
	Income reduced	850	35.9
	Job loss	71	3.0
	Income increased	0	0
Changes of mother's jobs related to COVID 19	Unchanged	1097	46.3
	Unknown	334	14.1
	Income reduced	884	37.3
	Job loss	68	2.9
	Income increased	1	0.04

During the period of studying, only a few children were directly concerned with the disease of Sars-CoV2 as 0.6% of F1 (second generation of infection) and 8.5% of F2 (the third generation of infection). Living areas were currently implemented social distance or quarantine for 22.1% and 12.8% of participants, respectively. Most children were living with fathers and mothers and siblings. A significant percentage of the participants' fathers or mothers had experienced changes in jobs such as reducing income (35.9% of interviewed children's father and 37.3% interviewed children's mother).

2.2.2. Changes in living conditions and lifestyle

The changes in living conditions and lifestyles of high school students were illustrated in Table 2.

Table 2. Changes in living conditions and lifestyle among high school students

Living conditions and lifestyle		n	%
Learning form	Direct	692	29.3
	Online	1598	67.6
	Others	74	3.1
Sleep time per day	< 6 h	234	9.9
	6 - 8 h	1366	57.8
	8 - 10 h	628	26.6
	> 10 h	136	5.7
Sleep behavior	Unchanged	1195	27.6
	Went to bed earlier than before	347	8
	Went to bed later than before	722	16.7
	Awake earlier than before	392	9.1
	Awake later than before	484	11.2
	Better sleep than before	246	5.7
	Less nightmares than before	84	1.9
	Longer nap after lunch	523	12.1
	Less nap after lunch	335	7.7
Diet changes	Unchanged	1552	61.9
	Eat more in one meal than before	282	11.2
	Eat less in one meal than before	266	10.6
	More meals than before	245	9.8
	Less meals than before	163	6.5

It was required to switch to online learning during the COVID-19 pandemic 67.6% of participants. However, 6 - 8 hours of average sleep time/day was maintained in most children, especially 5.7% of the interviewed children who slept more than 10 hours/day. In cases of change in sleep habits, the rate of experiencing negative changes such as going to bed later or waking up later, or having a longer nap time, were more likely to experience positive changes such as going to bed earlier and early risers and short naps. Among the group of children with changes in eating habits also showed, the rate of positive changes such as eating more meals or eating more at one meal was higher than positive changes such as eating fewer meals and eating less in each meal.

2.2.3. Changes in behaviors

Children's behaviors changed significantly before and during the COVID pandemic. Before pandemic COVID-19, outdoors time for 3 hours or more per day accounted for 56.6%, while during the COVID pandemic most children (54.9%) spend less than 30 minutes a day out of the house. However, the percentage of children with less than 30 minutes of exercise each day did not change before and during COVID. Regarding the time to use electronic devices before COVID: the majority (61.3%) of the interviewed children maintained at 30 minutes-3 hours/day, but during pandemic COVID 19, the majority of participants (54.8%) used more than 3 hours/day. Time for friends seemed to have no remarkable changes before and during COVID-19 (Figure 1).

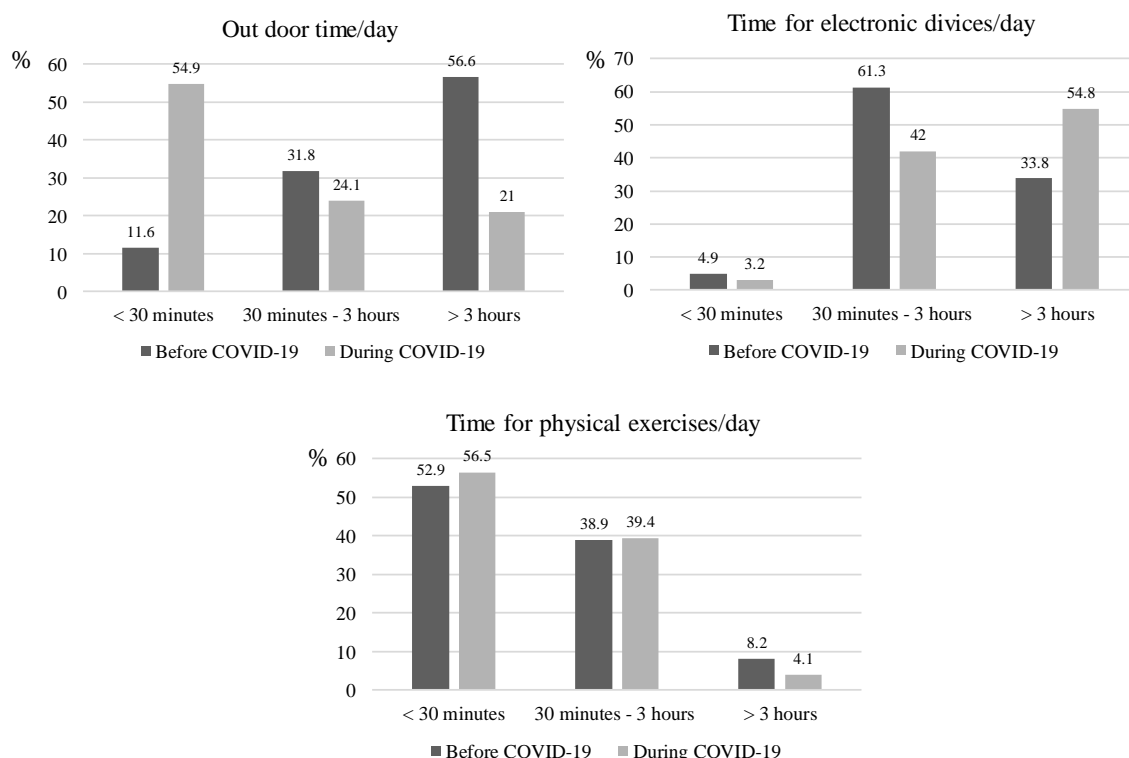


Figure 1. Changes in behaviors of high school students before and during pandemic COVID-19

2.3. Discussion

This study showed that the changes in socio-economic conditions related to the context of the Sars-CoV2 pandemic affected the living conditions of high school students in Vietnam, thereby causing their changes in lifestyle and behavior. Negative impacts were seen on the part of participants.

The closure of many schools to implement social distancing at the request of the Prime Minister had appeared as a new form of teaching that was rarely used before the epidemic. The online method of teaching via the internet was implemented with 67.6% of surveyed students. However, online learning required the preparation of learning facilities capable of connecting to the internet (laptop, phone, iPad, etc.), so many families, especially those living in the mountain and countryside were not eligible to meet which will affect the outcomes. Besides, the lack of interaction space between teachers and students might reduce interest in learning. While the epidemic continues to be complicated, online teaching is gradually becoming a popular trend and is likely to last, a call of improving the quality of lectures, innovation in teaching methods, and transfer of knowledge by appropriate learning facilities were essential to ensure quality education.

Most students (84.4%) slept 6 - 10 hours/day, and the quality of sleep was almost unchanged, however, children tended to go to bed later and wake up later. This finding was like the study of Felipe Dias Genta et al in 2021 on 200 high school students [10]. This can be explained by not requiring preparation for school as before (no travel time), so children were losing the habit of going to bed early and getting up early. Moreover, it may be because children like to sleep late due to the use of electronic devices for entertainment purposes. Research had also shown that 54.8% of students use electronic devices > 3 hours/day. This can be related to online learning, but also partly for other purposes such as watching movies, playing games, etc. High school students are sensitive internet users due to being in puberty with desires to discover new things, they can be easily tempted by negative pastimes on social networks. Giving children the freedom to use the internet in the COVID-19 era should be along with proper guidance and supervision.

The consequence of many rounds of social distancing in Vietnam in 2020 and 2021 is that people, including high school students, must often stay at home, only allowed to go out when necessary. More than half of surveyed students spent outdoors time <30 minutes/day, even before COVID-19. This showed that most Vietnamese high school students do not have enough time to practice sports. The recommended time for exercise and sports is at least 1 hour/day for this age to ensure the strong development of the skeletal system and the optimal height. Therefore, the issue of sedentary behavior in adolescents needed to be paid more attention to by educators and health professionals in the future. Choosing and switching to another form of exercise and sports during the epidemic season was necessary to ensure the maintenance of physical training habits, contributing to improving health and resistance to the epidemic [11].

In our study, 54.4% of students talked to friends for more than 1 hour/day during the outbreak of the pandemic, higher than before (44.6%). The development of social platforms such as Facebook, Instagram, Twitter, etc. had helped children have many ways

to interact with friends and teachers. In addition, being proactive in the daily schedule helps children have more time to spend with friends. Talking and sharing with friends and relatives will help children feel less lonely and depressed as well as reduce the risk of psychological problems during the COVID period.

In summary, this study described the changes in living conditions, lifestyle, and behavior of Vietnamese high school students under the impact of the COVID-19 epidemic. In the next phase, it is necessary to further evaluate each area such as how online teaching affects the quality of education, how children's psychology changes during the epidemic period, as well as causes leading to changes in lifestyle behaviors so that there is a basis for applying appropriate support solutions.

3. Conclusions

Research on 2369 high school students proved the impact on children's lifestyles and behaviors during pandemic COVID-19. Most children had to adapt to online learning, reducing outdoor time and decreasing family income. Adverse habits of children such as staying up late and waking up late, eating more, spend a long time on electronic devices tend to be formed. In the near future, appropriate strategies are necessary for children to adapt well to living conditions in COVID-19 and maintain healthy living habits.

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