

**Submitted**

6/9/2024

**Revised**


28/6/2024

**Accepted**

28/6/2024

**Published**

28/6/2024

**ORIGINAL RESEARCH****Study from home and stress level among school-age children**Endang Fidyaa Astutik , Reni Mareta, Estrin Handayani**Author information**

Department of Nursing, Universitas Muhammadiyah Magelang, Indonesia



endangfidyaa@gmail.com

<https://doi.org/10.31603/ihs.11532>**Abstract**

The COVID-19 pandemic necessitated a shift to online learning or study from home (SFH), which introduced a range of psychological stressors and associated challenges. This study investigated the correlation between stress levels and SFH among students. Utilizing an observational study design, the research included 241 respondents. Various validated instruments were employed to measure the scores of each variable and ethical clearances was secured before the study commenced. Spearman rank testing was conducted to assess the correlation between stress and SFH. The results demonstrated a significant correlation, indicating that studying from home contributes to heightened stress levels among students. Based on these findings, it is recommended that community healthcare professionals develop and implement interventions that specifically address the psychological well-being of students engaged in home-based learning.

**Keywords:** Nursing care; community care; innovation care; learning method; study from home**Introduction**

At the end of 2019, the world was caught off guard by the emergence of a novel pneumonia case with an unknown cause in Wuhan, Hubei, China (Zhu, Wei, & Niu, 2020). This pneumonia was later identified as being caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), commonly known as the COVID-19 virus (Wu, Chen & Chan, 2020). Scientific evidence indicates that COVID-19 is transmitted through respiratory droplets expelled from the respiratory tract, such as those released during coughing or sneezing which is proven to be widespread (Chauhan, 2020). The World Health Organization (WHO) has reported that COVID-19 has caused more casualties than both the SARS and MERS viruses of previous years. Consequently, in March 2020, the WHO declared COVID-19 a global pandemic. By December 7, 2020, COVID-19 had spread to 216 countries, with 180 nations experiencing local transmission (Lee, 2020). The COVID-19 pandemic has profoundly affected the epidemiological landscape in Indonesia. By August 9, 2023, the country had recorded over 6.8 million confirmed cases and more than 161,900 deaths, reflecting extensive transmission nationwide (Harapan, Harapan, Theodora, & Anantama, 2023).

As an effort to prevent the more widespread transmission of COVID-19 cases, the WHO temporarily recommended the suspension of activities that could lead to large gatherings. In response, the Indonesian government implemented policies to curb the spread of COVID-19 by advising the Indonesian public to practice social distancing or physical distancing (Handarini & Wulandari, 2020). Consequently, places that could lead to crowds and physical contact, including educational institutions such as schools and universities, were required to close (Setiawan, 2020). The Ministry of Education and Culture issued Circular Letter No. 4 of 2020 regarding the prevention of COVID-19 transmission in the education sector, instructing the implementation of distance learning and advising students to study from home (SFH) (Handarini & Wulandari, 2020). SFH is a method of remote learning that utilizes the internet for educational interaction (Sadikin & Hamidah, 2020). The SFH method has been considered the best alternative solution to prevent the spread of COVID-19 among students and to ensure that education in Indonesia continues. However, the sudden implementation of SFH has hindered the effectiveness of education in schools. SFH has caused confusion among the community, particularly educators and students, regarding the SFH learning system (Sari, 2021). SFH requires a higher level of independent learning compared to face-to-face education in schools, as educators tend to assign more tasks, and students often struggle with completing assignments due to minimal explanations of the material provided by teachers (Brown, Doom, Lechuga-

Peña, Watamura, & Koppels, 2020). The lack of preparedness among students, such as smartphone ownership, unstable internet connections, insufficient parental support during learning, limited social interaction among students, unfamiliarity with technology for education, and restricted access to necessary facilities, raises concerns that SFH may negatively impact the mental health of school-aged children, potentially leading to stress (Figure 1) (Sari, 2021).



**Figure 1.** Illustration of online learning among children (Courtesy of *unsplash.com*).

Stress can be experienced by anyone, including the elderly, adults, teenagers, and even school-aged children (Davis & Soistmann, 2022). While society has often perceived stress as primarily a concern for the elderly and adults, who face more complex survival challenges, this view overlooks the significant stressors faced by younger individuals (Sofianopoulou et al., 2021). School-aged children, for instance, encounter their own unique set of pressures that can contribute to stress. Academic expectations, peer relationships, family dynamics, and extracurricular activities all play a role in shaping a child's stress levels. In recent times, the added impact of the COVID-19 pandemic has further intensified these stressors, with remote learning, social isolation, and uncertainty about the future becoming new sources of anxiety for children (Stone, Witzig, & McIntosh, 2022). Teenagers, navigating the turbulent period of adolescence, grapple with identity formation, social acceptance, and academic performance, all of which can lead to heightened stress levels. Even though the challenges faced by younger individuals may differ in nature from those encountered by adults and the elderly, they are nonetheless significant and can have profound effects on their mental and emotional well-being. It is essential to recognize that stress is a universal experience, transcending age boundaries, and to ensure that adequate support systems are in place to help individuals of all ages manage and mitigate stress effectively (Ng & Ng, 2022). School-aged children can also experience stress, albeit from different causes, such as environmental changes and various pressures, including psychological, emotional, social, and intellectual pressures. A study conducted exposed that school-aged children found that those participating in SFH exhibited several signs of emotional distress, including difficulties in concentration, irritability, and frustration (Irwin, Lazarevic, Soled, & Adesman, 2022).

Further observations from the study indicated that 22.6% of school-aged children experienced symptoms of depression, and 18.9% experienced anxiety (Riany, 2020). Meanwhile, research conducted in Japan regarding stress among school-aged children due to learning from home revealed that 72% of children exhibited symptoms of stress (Griffith, 2020). From preliminary studies conducted at two elementary schools in Indonesia, it was found that students frequently complained of not understanding the lessons delivered by teachers due to limited communication between students and teachers. Additionally, children faced an overwhelming number of assignments, leading to confusion. Many children have faced significant challenges during the transition to SFH, primarily due to minimal parental support, as parents often had to work during this period. This lack of engagement has led to a notable decrease in social interaction among children, which is crucial for their emotional and social development. The restrictions on communication and interaction have made it difficult for children to form connections with their peers, leading to feelings of isolation. As a result, many students have struggled to concentrate on lessons or tasks assigned by educators. The overwhelming number of assignments, coupled with a lack of direct guidance, has contributed to increased confusion and frustration. Furthermore, the monotony of learning from home has caused many students to lose interest in their education, compounding their stress levels. These challenges can have profound effects on the emotional, intellectual, and psychological development of children. The absence of a structured learning environment and the inability to engage with peers can lead to heightened feelings of anxiety and depression. Consequently, there are growing concerns that school-aged children are at a greater risk of experiencing stress as a result of SFH. This study aims to delve deeper into this issue by identifying the characteristics of the respondents and assessing the stress levels of school-aged children. Additionally, it seeks to examine the relationship between SFH and the stress levels experienced by these children, providing valuable insights that could inform future educational strategies and support systems to better assist students in navigating these unprecedented times.

## **Method**

This study employs an analytical correlational observational research design. The analytical correlational observational research design is a method that focuses on examining the relationships between two or more variables without manipulating them (Hung, Bounsanga, & Voss, 2017). In this design, researchers observe and measure variables as they naturally occur, collecting data based on existing conditions rather than through experimental intervention (Boyko, 2013). The primary goal is to identify and analyze correlations or associations, such as exploring how stress levels relate to the number of hours spent in SFH. This approach emphasizes statistical analysis to determine the strength and direction of these relationships, often employing various statistical tests to draw conclusions (Capili & Anastasi, 2023). Data is typically collected at a single point in time, providing a snapshot that allows researchers to assess patterns without considering changes over time. Importantly, while this design can identify correlations, it does not establish causation, meaning it cannot determine whether one variable directly influences another. Researchers often use sampling techniques, such as purposive or random sampling, to select participants, ensuring that the sample is representative of the population being studied. Overall, this design is valuable for exploring relationships and generating hypotheses for further research, particularly in fields like psychology, education, and social sciences (Zaniletti, Larson, Lewallen, Berry, & Maradit Kremers, 2023).

The data collection technique uses a cross-sectional method. The research is conducted in two elementary schools in Magelang City. The sampling technique involves purposive sampling and proportional random sampling, meaning that the sampling is conducted randomly. Respondents are selected by taking subjects from each stratum, determined to be balanced with the number of subjects in each stratum. The total population in this study is 476, while the sample size is 241. The instruments used include demographic data, which consists of the following: name, class, age, school name, the number of days of SFH in a week, and the number of hours of SFH in a day. The SFH questionnaire includes a checklist to determine whether SFH is being implemented or not, while the stress level questionnaire consists of 25 questions related to symptoms of stress from emotional, intellectual, and interpersonal perspectives. The data analysis used includes univariate and bivariate analyses. The univariate analysis consists of age, class, the number of days of SFH in a week, the number of hours of SFH in a day, and the stress levels of school-aged children. The bivariate analysis in this study is used to determine the relationship or correlation between two variables, utilizing nonparametric statistical tests (Spearman's test). Ethical approval has been obtained before the research commenced. The final decision for statistical analysis was established at a significance level of 0.05 for hypothesis testing.

## Results

The following description outlines the study findings, provides an overview of the participants' demographic profiles, and details the data analysis conducted to achieve the study's objectives. The table shows that a majority of respondents are in grades 4 and 5, totaling 44 respondents (18.3%), while a smaller portion of respondents is in grade 1, accounting for 13.7% (**Table 1**). The table reveals that a significant portion of the respondents are 10 years old, with a total of 53 individuals representing 22% of the sample. This indicates that this age group is the most prevalent among the participants in the study. Additionally, it is noteworthy that there is 1 respondent, accounting for 0.4% of the total, who is 14 years old. This suggests a diverse age range among the participants, although the majority are concentrated in the younger age bracket of 10 years (**Table 2**). The table indicates that a substantial majority of the respondents, totaling 143 individuals, which represents 59.3% of the sample, participate in SFH activities on a daily basis. In contrast, 90 respondents, or 37.3%, engage in SFH for 2 to 4 days each week. Lastly, there are 8 respondents, accounting for 3.3% of the total, who participate in SFH only once a week. This infrequent engagement may indicate limited access to resources, personal preference, or other factors influencing their study habits. Overall, the data highlights differing levels of commitment to SFH among the respondents, showcasing a range of participation patterns in their educational routines. (**Table 3**). The table shows that there are 123 respondents (51%) who engage in SFH for 1-2 hours per day, 72 respondents (29.9%) who participate in SFH for less than 1 hour per day, 43 respondents (17.8%) who engage in SFH for 3-4 hours per day, and 3 respondents (1.2%) who participate in SFH for 5-6 hours per day (**Table 4**).

**Table 1.** Respondents in class.

Variable of class	Frequency (n=241)	Percentage (%)
1	33	13.7%
2	37	15.4%
3	40	16.6%
4	44	18.3%
5	43	17.8%
6	44	18.3%

**Table 2.** Respondents by age.

Age (Years old)	Frequency (n=241)	Percentage (%)
6	2	0.8%
7	18	7.5%
8	35	14.5%
9	36	14.9%
10	53	22%
11	43	17.8%
12	34	14.1%
13	19	7.9%
14	1	0.4%

**Table 3.** Distribution of characteristics for the number of SFH days in one week.

SFH days	Frequency (n=241)	Percentage (%)
Every day	143	59.3%
2-4 days in a week	90	37.3%
Once in a week	8	3.3%

**Table 4.** Distribution of characteristics for the number of SFH hours in one day.

Hours	Frequency (n=241)	Percentage (%)
Less than 1	72	29.9%
1-2	123	51%
3-4	43	17.8%
5-6	3	1.2%

The table indicates that among the 241 school-aged respondents, 200 individuals (83%) experience mild stress, while 41 respondents (17%) are identified as experiencing moderate stress. This distribution highlights that a significant majority of the children are facing mild levels of stress, suggesting that while they may encounter some challenges, the intensity is not severe. Conversely, the presence of 17% of respondents experiencing moderate stress points to a noteworthy concern that may require attention and support to help these children manage their stress levels effectively (**Table 5**). The findings suggest a prevalent issue of stress among school-aged children, with varying degrees of intensity. The table shows that there is a relationship between SFH and the stress levels of school-aged children. This is evidenced by the Spearman test results, which indicate a p-value of 0.022, falling below the significance level of 0.05. Additionally, the correlation coefficient (r) is -0.263, suggesting a moderate inverse relationship between the two variables. This negative correlation implies that as the frequency or duration of SFH increases, the stress levels of the children tend to decrease (**Table 6**). Overall, these findings highlight a significant connection between SFH practices and the stress experienced by school-aged children, indicating that effective management of SFH could potentially alleviate stress levels.

**Table 5.** Assessment to respondents' stress.

Stress level	Frequency (n=241)	Percentage (%)
Low	200	83%
Moderate	41	17%

**Table 6.** Analysis among variables.

Variables	n	p	correlation coefficient
SFH and stress level	241	0.022	-0.263

## Discussion

The results of the research showed that there is a relationship between SFH and the stress levels of school-aged children. The data processing results indicated an r value of -0.263 (0.26-0.50 = moderate correlation) and a p-value of 0.022 (< 0.05 = correlated). The direction of the relationship is negative (-), meaning the relationship between the two variables is inversely proportional. A study supports that correlation among stress levels in elementary school students during the home learning process amid the COVID-19 pandemic, with results showing  $t = 2.33$  and  $p = 0.013$  ( $p < 0.05$ ), indicating a moderately strong correlation between the two variables (Palupi, 2020). This aligns with the research, which stated that children experience stress and pressure during home learning activities (Lee, Ward, Chang, & Downing, 2021). It can be observed that the longer students engage in learning at home, the greater the likelihood they have of experiencing stress. This correlation suggests that extended periods of SFH may contribute to feelings of overwhelm, isolation, or anxiety among students. In contrast, those who attend school as usual tend to have a lower chance of experiencing stress, likely due to the structured environment, social interactions, and support systems that traditional schooling provides (Xu & Wang, 2023). Stress often arises from events or a series of negative experiences that individuals perceive as challenging and feel ill-equipped to handle. For students, these challenges may include the lack of direct interaction with peers and teachers, difficulties in maintaining focus and motivation in a home environment, and the pressure to perform academically without the usual support (Wallengren-Lynch, Dominelli, & Cuadra, 2023). Moreover, learning at home can blur the boundaries between personal and academic life, leading to an increased sense of pressure as students may struggle to separate study time from leisure or family obligations (Manchia et al., 2022). This lack of structure can exacerbate feelings of stress, particularly when students face technical issues or lack access to necessary resources (Park, Seo, Kim, Kang, & Lee, 2023). In contrast, attending school provides a more balanced routine, opportunities for social engagement, and immediate access to guidance from educators. These elements can significantly reduce stress levels, as students benefit from a supportive community that fosters collaboration and shared experiences. Understanding the relationship between learning environments and student stress is crucial for developing strategies to support mental well-being. For these reasons, educators and parents can work together to create a more conducive learning atmosphere that minimizes stress and promotes positive educational outcomes (Nuryana, Xu, Kurniawan, Sutanti, Makruf, & Nurcahyati, 2023).

The social and support systems present in traditional school settings play a crucial role in mitigating stress for students in several ways (McLean, Gaul, & Penco, 2022). Firstly, traditional schools provide students with the

opportunity to interact with their peers regularly. These social interactions foster friendships and create a sense of belonging, helping students feel more connected and supported (Abdul Aziz, Baharudin, & Alias, 2023). Having friends to share experiences with can alleviate feelings of isolation and anxiety. In a traditional school environment, students have direct access to teachers and school counselors who can provide academic assistance and emotional support (Baqutayan, 2011). This immediate availability of guidance allows students to address their concerns and challenges more effectively, reducing stress related to academic performance (**Figure 2**). Moreover, the routine and structure of a school day may help students to manage their time, responsibilities along with work.



**Figure 2.** Illustration of student performance in class (Courtesy of [unsplash.com](https://unsplash.com)).

Scheduled classes and breaks create a predictable environment that reduces uncertainty and anxiety, allowing students to focus on their studies without feeling overwhelmed. Participation in extracurricular activities, such as sports, clubs, and arts, provides students with outlets for stress relief and opportunities to develop new skills. These activities promote teamwork, creativity, and physical health, all of which contribute to overall well-being (Mai, Wu, & Huang, 2021). Additionally, traditional school settings help students develop essential social skills, such as communication, conflict resolution, and collaboration. These skills are crucial for building healthy relationships and managing interpersonal challenges, which can reduce stress in various social situations (Liu & Cao, 2022). Schools often encourage parental involvement through events, meetings, and volunteer opportunities (Kulakow, Raufelder, & Hoferichter, 2021). Engaged parents provide additional support and encouragement, reinforcing the importance of education and reducing stress for students who may feel pressure to perform. Furthermore, many traditional schools offer mental health resources, such as counseling services and workshops on stress management and coping strategies. Access to these resources helps students develop resilience and better manage their stress levels. In a traditional school setting, students receive regular feedback on their performance, helping them identify areas for improvement and celebrate their successes. Positive reinforcement and recognition from teachers and

peers can boost self-esteem and reduce anxiety about academic performance (Zimmerman, Torelli, & Chow, 2022). Overall, the combination of social interactions, structured routines, and access to support systems in traditional schools creates an environment that promotes emotional well-being and reduces stress for students (**Figure 3**). Schools play a vital role in helping students navigate the challenges of academic life by fostering connections and providing resources.



**Figure 3.** Illustration of students' stress (Courtesy of *unsplash.com*).

The daily routines and structure of traditional school schedules contribute significantly to students' ability to cope with stress. A structured school schedule provides a predictable environment where students know what to expect throughout the day (Bonnesen et al., 2020). This predictability helps reduce anxiety, as students can mentally prepare for each class and activity, minimizing uncertainty about their day. Traditional school schedules teach students time management skills by requiring them to adhere to specific class times and deadlines. This structure encourages students to prioritize tasks and develop effective study habits, which can alleviate stress related to procrastination and last-minute cramming (Alkhalwaldeh et al., 2023). Schools typically incorporate breaks between classes and lunchtime, allowing students to recharge. These breaks provide opportunities for social interaction, relaxation, and physical activity, all of which are essential for managing stress levels. A typical school day includes a mix of subjects and activities, which helps maintain student engagement and interest. This variety can prevent burnout and monotony, allowing students to approach their studies with a fresh perspective (Minshew, Bensky, & Zeeman, 2023). The structured nature of traditional schools fosters a supportive environment where students can seek help from teachers and peers. Regular interactions with educators provide opportunities for students to discuss concerns, receive guidance, and gain reassurance, all of which can mitigate stress (Van Ryzin & Roseth, 2021). Daily routines often involve setting and achieving short-term goals, such as completing assignments or participating in class discussions. This sense of accomplishment can boost self-esteem and motivate students to tackle future challenges with confidence. Regular interaction with classmates and teachers helps students build

relationships and develop social skills (Deng et al., 2022). These connections can serve as a support network during stressful times, providing emotional support and reducing feelings of isolation. Structured school schedules often include time for extracurricular activities, which allow students to explore interests outside of academics. Participation in sports, clubs, or arts can provide an outlet for stress relief and foster a sense of community. The daily routine of attending school creates a sense of stability in students' lives. This stability can be particularly important during times of personal or family stress, as it offers a consistent environment where students can focus on learning and personal growth. Regular assessments and feedback from teachers help students understand their progress and areas for improvement. Constructive feedback can motivate students to work harder while also helping them manage expectations and reduce stress related to performance (Córdova, Caballero-García, Drobnic, Roche, & Noriega, 2023).

Healthcare professionals play a crucial role in developing innovative solutions to address the stress experienced by students during online learning. Their expertise in mental health and well-being equips them to identify the unique challenges that students face in a virtual learning environment. Collaborating with educators, parents, and technology developers allows healthcare professionals to design specific interventions that enhance resilience and coping strategies for students (Johnson et al., 2020). One of the primary contributions of healthcare professionals is the design and implementation of mental health programs tailored specifically for online learning contexts. These programs may include workshops on stress management, mindfulness practices, and effective study techniques that can be delivered through virtual platforms. Integrating psychological principles into educational frameworks enables healthcare professionals to assist students in developing essential skills for effectively managing their stress levels (Priniski, Hecht, & Harackiewicz, 2018). Additionally, they can advocate for the inclusion of mental health education within school curricula, ensuring that students receive support in recognizing and addressing their emotional needs. Moreover, healthcare professionals can leverage technology to create innovative tools that facilitate mental health support for students. This includes developing mobile applications or online resources that provide access to counseling services, stress-relief exercises, and peer support networks (Ramshaw et al., 2023). Utilizing telehealth services allows healthcare providers to offer remote counseling sessions, making mental health resources more accessible to students who may feel isolated or overwhelmed. These technological innovations not only enhance the availability of support but also empower students to take an active role in managing their mental health. Furthermore, healthcare professionals can conduct research to better understand the specific stressors associated with online learning. Gathering data on student experiences helps identify common challenges and develop evidence-based interventions. This research informs the creation of resources that address issues like screen fatigue, lack of social interaction, and difficulties in maintaining motivation. Staying attuned to the evolving needs of students ensures that healthcare professionals' innovative solutions remain relevant and practical. Healthcare professionals play a crucial role in developing creative strategies to alleviate stress among students engaged in online learning. They provide essential support that enhances students' overall well-being through tailored mental health programs, technological advancements, and research-driven insights.

## **Conclusion**

The study highlights a significant correlation between stress levels and studying from home during the COVID-19 pandemic, indicating that remote learning contributes to increased psychological stress among students. Given these findings, it is essential for community healthcare professionals to develop research and implement targeted interventions aimed at supporting the psychological well-being of students engaged in home-based learning. Addressing these challenges can help mitigate stress and enhance the overall mental health of students during such unprecedented times. Healthcare professionals can create a holistic approach to addressing the mental health challenges faced by students in the digital learning landscape by fostering collaboration between various stakeholders.

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### Author's perspective

#### Key points

- A significant correlation between stress levels and studying from home
- It is important for healthcare professionals to develop research supporting the psychological well-being
- Positive reinforcement and recognition from teachers and peers can boost self-esteem and reduce stress among students

#### Potential areas of interest

- How does remote learning contribute to psychological stress among students?
- What potential benefits can arise from addressing the psychological challenges faced by students during remote learning?
- What specific strategies might be implemented to support the psychological well-being of students during unprecedented times?

### How to cite this article (APA style)

Astutik, E. F., Mareta, R., & Handayani, E. (2024). Study from home and stress level among school-age children. *Innovation in Health for Society*, 4(1), 22-32. <https://doi.org/10.31603/ihs.11532>