



The Effect of COVID-19 on Family Support for Home-Schooling in Urban Areas

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Abstract

The objective of the study is to clarify that the family participated in COVID-19 as a home-schooling family. The sample was selected according to the geographical distribution of schools in the eastern region of Khartoum. Data was collected through a questionnaire and interviews. The most important result is that there is an increasing interest from parents to support home-schooling despite the challenges of continuing learning, such as the widening digital divide in technology, previous experience, and poor network connectivity. This research paper focused on the point of view of parents in the city of Khartoum on supporting home-schooling according to social variables related to both mother and father, and the paper concluded that parents of students in private schools are more supportive of home education. Also, most of the parents of students who support home-schooling have reached their university level of education and post-university and belong to the youth age group. Although parents emphasize the importance of home-schooling during the COVID-19 infection, there are challenges associated with providing home-schooling for their children.

Keywords:

e-Learning;
COVID-19; Pandemic; Parents;
Home-schooling; Secondary School.

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1- Introduction

The global outbreak of the COVID-19 pandemic has precipitated a cascade of changes, one of the most profound being the sudden disruption of traditional classroom-based education [1]. The closure of schools as a measure to mitigate the spread of the virus led to an unprecedented shift towards remote and e-learning, introducing students and educators alike to a new frontier in education [2]. This rapid transformation, while commendable for its adaptability, has had far-reaching consequences that extend beyond the classroom and into the very hearts of urban households.

Students, who once thrived in the social ecosystems of their schools, found themselves abruptly isolated from their peers, teachers, and the structure that physical classrooms provided. The closure of these educational institutions not only deprived students of valuable in-person learning experiences but also disrupted the social fabric that supports their holistic growth and development. In an attempt to bridge this gap, schools worldwide quickly adopted online classes and e-learning platforms [3]. However, this transition brought forth an intricate set of challenges, particularly for parents. Many parents, now working from home themselves, had to navigate the complex task of balancing their professional

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commitments with the newfound responsibility of guiding and facilitating their children's e-education. This juggling act became a hallmark of the pandemic era, as parents became essential partners in the educational journey of their children [4]. While the effects of this transition were felt globally, they were acutely pronounced in urban areas. Families in these settings, often characterized by fast-paced lifestyles and limited available time, had to adapt swiftly to the demands of home [5]. Moreover, urban households encountered unique challenges, such as access to reliable internet services, increased stress associated with remote work, and the struggle to create suitable learning environments within confined spaces.

In this context, developing countries faced specific hurdles related to the digital divide, technological proficiency, and network connectivity [6]. Within this broader framework, the city of Khartoum in the eastern region emerged as a microcosm of these challenges. Families here, like many others, found themselves navigating the uncharted waters of home-schooling, facing not only the technical difficulties but also addressing questions related to their active participation, support, and overall well-being. The objective of this study is to delve into the experiences of these families thrust into the role of home-schooling facilitators during the COVID-19 pandemic, focusing on those residing in the eastern region of Khartoum. Through a combination of questionnaires and interviews, this research aims to shed light on the challenges faced, the level of parental engagement, and the impact of various social variables related to both mothers and fathers.

Research Problem: The study is concerned with parents' viewpoints on home education during the two waves of Coronavirus infection, based on the variables of education level and age.

Objective: Clarification the family participated in the COVID-19 as a home-schooling family.

Research Question: What was the response of Sudanese urban area parents to the COVID-19 waves in terms of supporting home-schooling?

2- Literature Review

Roe et al. (2021) [7] examine how home-schooling affects physical activity among Norwegian students in grades 1–10. It raises questions about the extent to which students were responsible for their physical activity during COVID-19. Isenberg discussed quantitative research on home-schooling, including the available data, the pitfalls of using the data, estimates of the number of home-schooled children, and part-time home-schooling [8]. The study of Ahmed & Abdalrahman (2022) [9], clarifying the connection between academic achievement and social variables for parents during COVID-19, is one of the most important studies. According to the findings of the study, a number of social variables related to parents have an impact on the academic achievement of their children, the most important of which is age, work, education level, and family size.

Zhao et al. (2020) [10] found that students should continue their school routine at home after the COVID-19 pandemic as a means of coping with the changes in the school environment. The need for integrated approaches based on grade level is essential. Taking appropriate eye-protection measures is necessary due to the effects of screen time and insufficient outdoor activities on children's eyesight. In some countries, research projects directly related to home schooling during the Corona virus pandemic were conducted, with findings focusing on perceptions regarding parents' experiences and ways to handle difficult situations. They found that the current situation is difficult and that parents are concerned about their children's future because of the responsibilities related to education at home [11, 12].

In addition to their valuable contributions to further information on how to improve home learning during this ongoing pandemic, scholars interested in education during COVID-19, especially home-schooling, have also made valuable contributions to the understanding of how to make it better. According to Fontenelle-Tereshchuk (2021) [13], parents are sceptical about the reliability of online education, arguing that online tools may not be suitable to promote independent learning in children. Researchers conducting studies in Norway examining lower secondary school students' experiences of distance learning have found that home-schooling can result in a large achievement gap between high-performing and low-achieving students [14].

In some studies, students' home-schooling efforts were examined for social inequality, and the results indicated significant differences between home-schooling efforts by social background [15, 16], as well as the potential for school closings to exacerbate social inequality. It was found that parents were highly satisfied with the online learning experience, Ahbabi (2021) [17]. As a result of their concern for their children's education and health, women were more likely to reply to the survey. Online education is popular in the UAE because parents are pressed for time. It was notable that academics from around the globe offered to assist parents during the pandemic [15–18]. Each of the scholars, such as Kebritchi et al. (2017) [18] and Cojocariu et al. (2014) [19], identify a number of challenges in online learning, including learners', educators', and content-specific challenges. Educators face challenges when it comes to engaging students in the teaching-learning process. Teachers' time management and teaching methodologies will be challenged during the transition from offline to online mode. Creating curriculum-based content that engages students and covers curriculum requirements is a challenge [19–22].

In some studies that explored parents' views on kindergarten and primary school students' distance learning experience and support needed, as well as the amount of time children spend on screen media at home during COVID-19 class suspension, major findings emerged: most children encountered difficulties in completing distance learning tasks at home, with the major difficulties being children's lack of learning interests and home environment-related limitations. Most children were not able to complete the learning tasks independently, and more parents without online learning were dissatisfied with distance learning during class suspension than those with online learning [23]. Each study focused on home-schooling challenges such as family income, computer resources, access to Internet services, and poor network connectivity during COVID-19 [24–36].

Dai et al. (2023) [37] study examine how COVID-19 affects high school students' reading behavior and their parents' attitudes toward reading during the lockdown. Results showed revealed the effectiveness and problems of high school students' use of electronic resources and discovered changes in the reading behavior of high school students and their parents' attitudes during corona pandemic.

3- Methodology

In order to gain insights into the impact of the COVID-19 pandemic on family support for home-schooling in urban areas, a structured and systematic research methodology was employed. This section elaborates on the methodological approach used to collect and analyze the data for this study. The flowchart of the research methodology that was used to achieve the study's aims is shown in Figure 1.

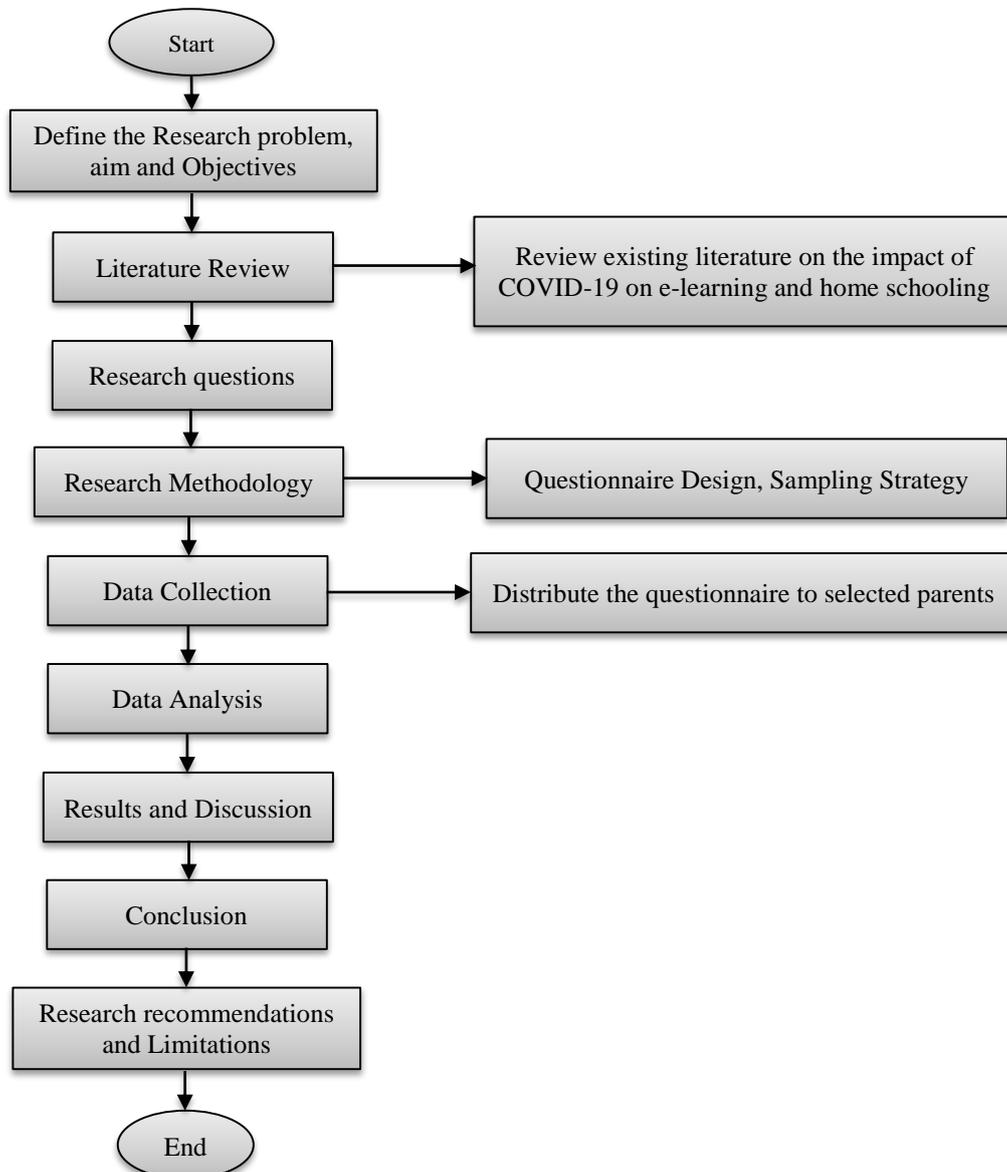


Figure 1. Flowchart of the methodology

4- Result and Discussion

Following are the tables that analyze parents' support for home education for their children based on field data (Table 1). In light of the data, most of the students in the research community attend private schools, and to a lesser extent, they are enrolled in government schools. As can be seen from the high percentage of parents of students in private schools who support e-learning, parents of students in private schools are more aware of the importance of home education during the multiple lockdowns caused by COVID 19. In government schools, academic technology is not as readily accessible as it is in private schools.

Table 1. Type of school

| Type of school | Parents' opinion about e-Learning according to the type of school | | | | | | Total |
|----------------|---|------|----------|------|---------|-----|-------|
| | Agree | | Disagree | | Neutral | | |
| | Number | % | Number | % | Number | % | |
| Government | 36 | 32.7 | 11 | 10 | 5 | 4.5 | 52 |
| Privet | 53 | 48.2 | 4 | 3.6 | 1 | 0.9 | 58 |
| Total | 89 | 80.9 | 15 | 13.6 | 6 | 5.5 | 110 |

We found that those who had completed university and post-graduate education were more supportive of e-learning when comparing the educational level of the father and support for home education during the epidemic (Table 2). Their number reached a little more than half of the sample size during the epidemic. These children attend private schools, so it is important to be aware of this fact. In spite of this, even though there are a percentage of fathers with a low university education, as illustrated in Table 3, 23% of them support e-learning.

Table 2. Fathers' educational level

| Father's educational level | Opinion on e-Learning according to father's educational level | | | | | | Total |
|----------------------------|---|------|----------|------|---------|-----|-------|
| | Agree | | Disagree | | Neutral | | |
| | Number | % | Number | % | Number | % | |
| Reads and writes | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Primary | 5 | 4.6 | 1 | 0.9 | 0 | 0 | 6 |
| Preparatory | 2 | 1.8 | 15 | 13.6 | 3 | 2.7 | 20 |
| Secondary | 19 | 17.3 | 7 | 6.4 | 2 | 1.8 | 28 |
| University | 44 | 40 | 0 | 0 | 2 | 1.8 | 46 |
| Post- University | 10 | 9.1 | 0 | 0 | 0 | 0 | 10 |
| Total | 80 | 72.8 | 23 | 20.9 | 7 | 6.3 | 110 |

Table 3. impact of education level on father's support home-schooling during COVID19

| Ranks / Statistical Tests, a | | | |
|---|--------------|--------------|--------------|
| Does father's education level effect home-schooling support during Covid19? | N | Average rank | Sum of ranks |
| Effect of education level on father's support home-schooling | No | 23 | 41.26 |
| | Yes | 80 | 90.99 |
| | Total | 103 | |
| Effect of education level on father's support home-schooling | | | |
| Mann-Whitney U test. | | 537.000 | |
| W from Wilcoxon | | 2682.000 | |
| Z | | -7.471 | |
| Sig. asymptotic (bilateral) | | 0.000 | |

a. Grouping variable: Does the education level effect on support home-schooling?

With regards to the variable of education level as an influence on father's support for home-schooling during Covid19, the differences between the averages differ, as 99.99 percent of respondents supported education differences affecting home-schooling support, while 41 percent opposed it. As a result of Mann-Whitney U test, the correlation between the father's support for home-schooling and the child's level of education is significant.

Using Table 4, we can see that the number of mothers who have a negative opinion about e-learning is higher than that of fathers, according to their educational level. Among Sudanese society's gender issues is the belief that the mother is responsible for overseeing the children's education, due to the father's belief that the father is merely a helper. According to the interviews with the mothers, the father places an increasing burden on their daily schedules by requiring them to pursue e-Learning on top of their homework.

Table 4. Mother's educational level

| Mother's educational level | Opinion on e-Learning according to father's educational level | | | | | | Total |
|----------------------------|---|------|----------|------|---------|-----|-------|
| | Agree | | Disagree | | Neutral | | |
| | Number | % | Number | % | Number | % | |
| Reads and writes | 2 | 1.8 | 0 | 0 | 2 | 1.8 | 0 |
| Primary | 2 | 1.8 | 4 | 3.6 | 0 | 0 | 6 |
| Preparatory | 3 | 2.7 | 16 | 14.6 | 0 | 0 | 20 |
| Secondary | 24 | 21.8 | 12 | 11 | 0 | 0 | 28 |
| University | 34 | 30.9 | 3 | 2.7 | 0 | 0 | 46 |
| Post- University | 8 | 7.3 | 0 | 0 | 0 | 0 | 10 |
| Total | 73 | 66.3 | 35 | 31.9 | 2 | 1.8 | 110 |

Early research during the first and second waves of the epidemic raises concerns about the gender inequality distribution of the increasing demands for care on women. As a result of home educational care responsibilities, most mothers doing domestic work during this time report that their work hours have increased [20, 21, 24, 25]. Our study also found that 38.2% of mothers who have a university or postgraduate education emphasize the importance of e-Learning during the spread of COVID19 infection.

It can be seen from the above table that there are different differences between the averages depending on mother's educational level when it comes to supporting home-schooling during COVID19. Based on the Mann-Whitney U test, the average of supporters of education differences as affecting home-schooling support was 71.42 while the average for non-supporters was 60.03, indicating that there are differences in the relationship between education level and mother's support for home-schooling (Table 5).

Table 5. Impact of education level on mother's support home-schooling during COVID19

| Ranks / Statistical Tests ^a | | | | |
|---|--------------|--------------|--------------|---------|
| Does mother's education level effect home-schooling support during COVID19? | N | Average rank | Sum of ranks | |
| Effect of education level on mother's support home-schooling | No | 35 | 60.03 | 3421.50 |
| | Yes | 73 | 71.42 | 5656.50 |
| | Total | 108 | | |
| Effect of education level on mother's support home-schooling | | | | |
| Mann-Whitney U test. | | | 1768.500 | |
| W from Wilcoxon | | | 3421.500 | |
| Z | | | -1.072 | |
| Sig. asymptotic (bilateral) | | | 0.089 | |

a. Grouping variable: Does the education level effect on support home-schooling?

For fathers, the biggest percentage of approval for home-schooling remained between the ages of 25-36, representing 46.4%, followed by that of late youth, representing 15.5% (Table 6).

Table 6. Opinion on e-Learning according fathers' age

| Father's age | Opinion on e-Learning according to father's age | | | | | | Total |
|--------------|---|------|----------|------|---------|---|-------|
| | Agree | | Disagree | | Neutral | | |
| | Number | % | Number | % | Number | % | |
| 25-30 | 20 | 18.2 | 4 | 3.6 | 0 | 0 | 24 |
| 31-36 | 31 | 28.2 | 10 | 9.1 | 0 | 0 | 41 |
| 37-42 | 17 | 15.5 | 8 | 7.3 | 0 | 0 | 25 |
| Above 43 | 5 | 4.5 | 15 | 13.6 | 0 | 0 | 20 |
| Total | 73 | 66.4 | 37 | 33.6 | 0 | 0 | 110 |

Using the Mann-Whitney U test, there is a significant difference between those agreeing that fathers' support is affected by their age and those who disagree, with the average supporter reaching 72.40 and the average dis-agree reaching 58.74 (Table 7).

Table 7. The impact of father's age on his view of home-schooling during COVID 19

| Ranks / Statistical Tests, a | | | | |
|--|--------------|--------------|--------------|---------|
| Impact of father's age on his view of home-schooling during COVID 19 | N | Average rank | Sum of ranks | |
| Age impact on father's support of home-schooling | No | 37 | 58.74 | 3348.00 |
| | Yes | 73 | 72.40 | 5115.00 |
| | Total | 110 | | |
| Age impact on father's support of home-schooling | | | | |
| Mann-Whitney U test. | | | 1695.00 | |
| W from Wilcoxon | | | 3348.00 | |
| Z | | | -2.042 | |
| Sig. asymptotic (bilateral) | | | 0.041 | |

a. Grouping variable: How parents' age affects their view of home-schooling during COVID-19

Based on Table 8, 40% of mothers during epidemic waves who emphasize home-schooling are in the age group 25-36. We find that mothers are more likely than fathers to support home-schooling during the epidemic, when comparing Table No. 4 with Table 8.

Table 8. Opinion on e-Learning according mothers' age

| Mother's age | Opinion on e-Learning according to mother's age | | | | | | Total |
|--------------|---|------|----------|------|---------|---|-------|
| | Agree | | Disagree | | Neutral | | |
| | Number | % | Number | % | Number | % | |
| 25-30 | 26 | 23.6 | 13 | 11.8 | 0 | 0 | 39 |
| 31-36 | 14 | 12.7 | 23 | 21 | 0 | 0 | 37 |
| 37-42 | 20 | 18.2 | 4 | 3.6 | 0 | 0 | 24 |
| Above 43 | 5 | 4.5 | 5 | 4.5 | 0 | 0 | 10 |
| Total | 65 | 59.1 | 45 | 40.9 | 0 | 0 | 110 |

When comparing the percentages of the two tables in youth age 31-36, there is an important point to consider. During the epidemic, mothers are more likely to support home education than fathers, with their percentage reaching 21% in comparison to fathers' 9.1%. The reason for this is that Table 3 refers to the increasing burden of unpaid home care, which is why this percentage increased.

Based on Mann-Whitney U test results, Table 9 reveals a significant difference between the average supporter of home-schooling and the average disagree, with the average supporter reaching 72.20, a significant difference in home-schooling support. The relationship between age and home-schooling support varies according to the mother's age.

Table 9. The impact of mother's age on his view of home-schooling during COVID-19

| Ranks / Statistical Tests, a | | | | |
|--|--------------|--------------|--------------|---------|
| Impact of mother's age on his view of home-schooling during COVID 19 | N | Average rank | Sum of ranks | |
| Age impact on mother's support of home-schooling | No | 45 | 54.26 | 3553.00 |
| | Yes | 65 | 72.20 | 5115.00 |
| | Total | 110 | | |
| Age impact on mother's support of home-schooling | | | | |
| Mann-Whitney U test. | | | 2010.00 | |
| W from Wilcoxon | | | 3661.00 | |
| Z | | | 0.587 | |
| Sig. asymptotic (bilateral) | | | 0.554 | |

a. Grouping variable: How parents' age affects their view of home-schooling during COVID-19?

5- Conclusions

As a result of the epidemic during the first and second waves, there was an increased awareness of school education risks, and all countries switched to electronic education, which increased the importance of families in supporting secondary education and academic achievement, resulting in what has become known as home schooling, one of the most important changes of all.

The purpose of this research paper was to study the views of parents in Khartoum about support for home-schooling based on social variables pertaining to both parents and children. According to the paper, parents of private school students support home-schooling. Additionally, most parents who support home-schooling support their children through university and post-university education, and they are young adults themselves. Despite parents' emphasis on home-schooling during the COVID-19 infection, home-schooling can be challenging. 69.1% of the sampled parents reported experiencing these difficulties, including:

- a) The primary challenge in developing countries is providing Internet services to the majority of families. This is because there is a digital divide caused by unequal access to the Internet and technology. The widening of the digital divide in technology, computer resources, access to Internet services, and poor network connectivity during COVID-19,
- b) The cost of providing computers and internet services does not correspond to the family's income. In addition to other major barriers for parents, such as having no previous experience, poor network connectivity, and unawareness about online platforms, poor audio/video qualities.

In disaster situations such as the COVID-19 pandemic, the findings of this study can provide a deeper understanding of home-schooling and student parents' roles in supporting the social well-being of their children. As young children are more active in learning when they are home-schooled, they have the advantage of being in a familiar, safe learning environment. Moreover, the results provided a clear picture of the role women play in raising and educating children, a key role that decision-makers in developing countries must take into account.

5-1-Recommendations

This study suggests several valuable research recommendations that can further enhance our understanding of the impact of the pandemic on home-schooling in urban areas. First, future research should consider exploring diverse urban settings, encompassing a broader range of cities and regions, to provide a more comprehensive view of how local contexts influence home-schooling. Additionally, longitudinal studies tracking the evolution of family support for home-schooling over time can provide insights into changing perceptions and experiences. Such studies can help policymakers and educators adapt strategies as the pandemic progresses and eventually subsides.

Comparative research, comparing urban experiences with those in suburban or rural areas, can shed light on disparities and unique challenges faced by urban families. Furthermore, it is crucial to incorporate the perspectives of various stakeholders, including educators, school administrators, and students themselves, to gain a comprehensive understanding of the home-schooling ecosystem during the pandemic.

Research should also focus on evaluating the long-term impact of home-schooling on children's cognitive, social, and emotional development. Understanding whether home-schooling during the pandemic has lasting effects on students' academic performance and well-being is essential. Lastly, deeper investigation into issues of technology access and the digital divide is imperative, along with the identification of strategies to bridge these gaps and ensure inclusivity in education.

5-2-Research Limitations

While this study offers valuable insights, it is essential to acknowledge several limitations that affect the scope and generalizability of the research. First, the geographical scope of the study is confined to East Khartoum City. While the findings provide a rich understanding of this specific urban area, they may not be directly transferable to other urban settings or regions, which could have distinct dynamics related to home-schooling during the pandemic. Additionally, the sample size used in this research, while carefully selected, is relatively small. A larger and more diverse sample could offer a more comprehensive perspective on the impact of COVID-19 on family support for home-schooling, capturing a wider range of experiences and challenges.

The cross-sectional design of the study captures a specific point in time, providing a snapshot of parental experiences. However, future studies would be needed to observe how perceptions and experiences evolve over time, particularly as the pandemic continues to unfold and new challenges arise. Moreover, the data collected primarily relies on self-reports from parents. While self-reported data are valuable, they are subject to potential response bias and inaccuracies. Future research could enhance the validity of findings by triangulating self-reported data with observations or other sources.

The findings of this study are specific to the context of the COVID-19 pandemic. The unique circumstances of the pandemic have a profound impact on the results and may not be directly applicable to other crises or scenarios. It is crucial to recognize these situational dependencies. The study does not extensively explore the influence of social and cultural factors on family support for home-schooling. Investigating how cultural norms and societal expectations shape family experiences during the pandemic is a subject for further research. While the research recognizes the importance of psychosocial support, it does not delve deeply into the emotional well-being of students and parents. Examining the psychological impact of home-schooling during crises is an avenue for future exploration. Lastly, the research involved a sample of parents who voluntarily participated, which introduces the possibility of selection bias. Those who chose to participate may have differing perspectives from those who declined.

These limitations provide essential context for interpreting the findings of the study and guide the direction of future research endeavors aiming to comprehensively explore the multifaceted nature of home-schooling during unprecedented crises.

6- Declarations

6-1- Author Contributions

Conceptualization, O.S.A.; methodology, O.S.A. and A.A.; software, A.S.A.; validation, S.G. and A.Z.A., formal analysis, M.E.E.; investigation, S.G.; data curation, O.S.A. and A.A.; writing—original draft preparation, O.S.A. and M.E.E.; writing—review and editing, O.S.A.; visualization, A.S.A. and Z.M.N.; supervision, O.S.A.; project administration, O.S.A. and A.A.; funding acquisition, Z.M.N. and A.S.A. All authors have read and agreed to the published version of the manuscript.

6-2- Data Availability Statement

The data presented in this study are available on request from the corresponding author.

6-3- Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

6-4- Institutional Review Board Statement

Not applicable.

6-5- Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

6-6- Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

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