

Readiness to Send Children Back to School in the COVID-19 Pandemic: Maternal Perception and Preferences

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ABSTRACT

Introduction: Whether children should go back to school amidst the Coronavirus Disease 2019 (COVID-19) menace, is currently a burning issue. The perception of parents on their children returning to school varies. This may be due to discrepancies in the learning methods available to the children at home, as well as the child's exposure to the vices and abuse of the internet.

Aim: To determine the maternal perception and preferences with regard to their readiness to send their children back to school in the COVID-19 Pandemic.

Materials and Methods: This was a cross-sectional study undertaken in a tertiary health institution in South East Nigeria. Systematic random sampling technique was used to select mothers who presented in the three units of children out-patient department in the hospital. A pre-tested interviewer-administered questionnaire was used to collect information from the respondents. Chi-square test and multivariate analysis using binary logistic regression were used in the analysis. The

level of statistical significance was determined by a p-value of <0.05.

Results: The mean age of the respondents was 40.1±12.3 years and the highest proportion (33.2%) were in the age group 30-39 years. Majority of them (78.5%) were married. Majority of the respondents (56.7%) were willing to allow children return to school. The major reason for not allowing children return to school was their distrust in the schools' preventive measures (80.6%). Predictors of willingness of mothers to allow children return to school included being <30 years, {Adjusted Odds Ratios (AOR)=0.3, 95% Confidence Interval (CI): 0.2-0.7}, being married, (AOR=0.4, 95% CI: 0.2-0.7) and having poor knowledge of preventive practices against COVID-19, (AOR=2.8, 95% CI: 1.7-4.8).

Conclusion: Majority of mothers preferred that children should return to school. The younger age group and the married women were more likely to allow children go back to school. The respondents who had poor knowledge of preventive practices were also more eager that children should return to school.

Keywords: Nigeria, Parents perception, Predictors of willingness, School attendance

INTRODUCTION

The COVID-19 pandemic led to the closure of over 60% of schools in 186 countries forcing about 1.5 billion students to remain at home [1]. The reopening of schools is laden with fear and resentment especially when the rate of infection continues to soar at an alarming high-rate [2]. This unpreparedness to reopen schools is further worsened by the Centres for Disease Control and Prevention (CDC) warning that school activities will likely lead to the spread of COVID-19 in schools [2]. However, some countries such as Denmark, Germany, Finland and Norway, as at the time of this report, have reopened their schools after inculcating washing of hands, keeping desks at two meters apart and cleaning of education materials twice a day without necessarily wearing face mask [2]. These measures were reported to have caused significant reduction in mortality rate to as low as 10 deaths per 100,000 people, compared to America, where schools have not reopened but death rate was as high as 42.29 deaths per 100, 000 [2]. Reopening of schools is also very crucial because children rarely get infected with the virus, due to denudation of the mucosal receptor site to ACE inhibitors. Research has also shown that children are not infected as much as adults, and when they are infected, they rarely have severe infection [2]. Again in the United States, two hundred children have been tested positive for the coronavirus constituting, 7.6% of cases, with only 63 deaths and as much as three hundred children have developed multi-system inflammatory syndrome which gives them immunity after COVID-19 infection [3-7].

It is important to note that studies done in Spain, France and England showed that children have about fifty percent likelihood of developing antibodies to COVID-19, from previous infection [8], though it was noted that closing schools slowed viral transmission and reduced mortality by about 4% [8]. On the contrary, a study showed that children may be exposed to COVID-19 less often than adults since majority of them were sequestered at home during the pandemic while their parents continued with their daily activity [9].

A study on school readiness in the United States, showed that eleven percent of parents whose children are currently not in school, reported that their children are not getting any type of education, while forty-two percent of parents worry that COVID-19 will seriously affect child's education [10].

Though integrated digital learning platforms such as, Massive Open Online Courses (MOOCs), video lessons, radio and television broadcast, exist [11], and as fascinating as these innovations may be, children from low-income communities, who have no access to these, will be left out during this period [11].

This is the first ever study undertaken in this vicinity, as much is unknown in literature, with respect to school reopening especially in Nigeria. This study was aimed to determine the maternal perception and preferences regarding their readiness to send children back to school in the COVID-19 Pandemic. The findings from this study, may be a wakeup call to the government to consider reopening schools as the infection in children and mortality is very minimal.

MATERIALS AND METHODS

This was a cross-sectional study conducted among mothers that presented with their children to the paediatric wards, outpatient clinics and the children emergency room of Enugu State University Teaching Hospital from June 2020 to August 2020.

Inclusion and Exclusion criteria: Mothers who gave consent and whose children has reached school age and were out of school from lockdown were enrolled in the study while mothers who did not give consent and whose children have not reached school age were excluded. Four hundred and four mothers were in the course of the study from June to August 2020. Mothers who did not give consent were excluded.

All procedures performed were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standard. Ethical approval was obtained from the Ethics and Research committee of the Enugu State University Teaching Hospital. (Reference number: ESUTP/C-MAC/RA/034/Vol 1/266).

Information on demography, educational status and perception on school preparedness were obtained from the mothers by means of a structured interviewer-administered questionnaire. Knowledge of spread entails; spread through contact with COVID-19 infected person(s), spread by airborne, spread by droplet infection, regular touching of face after touching infected surfaces, contact with blood and contact with blood products. The contents of the questionnaire were explained to the mother in the local language. Outcome variable was willingness of the mothers to allow their children return to school amidst the COVID-19 pandemic.

Six variables were used to assess knowledge of spread of COVID-19 among the respondents. Each correct answer was assigned a score of one while every incorrect answer was scored zero. Good knowledge of spread of COVID-19 was determined by proportion of respondents that correctly answered $\geq 60\%$ of six variables used to assess mode of spread of COVID-19.

Nine variables were used to assess preventive practices against COVID-19 among the respondents. For every correct answer, a score of one was given while an incorrect answer attracted a score of zero. Good knowledge of preventive practices against COVID-19 was determined by proportion of respondents that correctly answered $\geq 60\%$ of nine variables used to assess preventive practices against COVID-19.

Sample size estimation: The minimum sample size used in this study was calculated using the formula:

$$N = \frac{Z^2 P(1-P)}{D^2}$$

Where, $Z=1.96$ i.e., the level of significance

P =proportion of mothers willing to allow their children to return to school and assumed to be 50% (taken as 0.5 being a new study)

D =Tolerable error (0.05)

Using the above formula, the minimum sample size with 5% attrition rate was approximately 404.

Sampling Technique

Systematic random sampling technique was used to select clients as they presented on each day of data collection, using the facility register. A total of 1186 clients presented in the three Paediatric clinics in the health facility. This included the Children

out-patient clinics, children emergency room and immunisation clinics on a monthly basis within this COVID-19 period. This total number, 1186 served as sampling frame. Sampling interval was determined by dividing sampling frame (1186) by sample size (404), hence a sampling interval of 3 was used. Every third client was recruited for the study based on order of registration of clients in each of the clinics on each day of data collection. The index client was selected by simple random sampling method through balloting. The clients coming for the various clinics on the five working days of the week were included in the study.

STATISTICAL ANALYSIS

Data entry and analysis were done using IBM Statistical Package for Social Sciences (SPSS) statistical software version 25. Continuous variables were summarised using mean and standard deviation while categorical variables were summarised using frequencies and proportions. Frequency tables and cross tabulation were generated. Chi-square test of statistical significance and multivariate analysis using binary logistic regression were used in the analysis and the level of statistical significance was determined by a p-value of <0.05 .

In determining the predictors of willingness of mothers to allow children to return to school amidst COVID-19 pandemic, variables that had a p-value of <0.2 on bivariate analysis were entered into the logistic regression model for that purpose. The results were reported using Adjusted Odds Ratios (AOR) and 95% confidence interval and the level of statistical significance was determined by a p-value of <0.05 .

RESULTS

[Table/Fig-1] shows the socio-demographic characteristics of the respondents. The mean age of the respondents was 40.1 ± 12.3 years. The highest proportion of respondents was in the age group, 30-39 years, (33.2%). Majority of the respondents (78.5%) were married. Majority (56.2%) were self-employed.

Variable	Frequency (n=404)	Percent
Age of respondents (years)		
Mean \pm SD	40.1 \pm 12.3	
Age of respondents in groups		
<30 years	82	20.3
30-39 years	134	33.2
40-49 years	102	25.2
≥ 50 years	86	21.3
Marital status		
Married	317	78.5
Never married	13	3.2
Separated	42	10.4
Divorced	32	7.9
Employment status of respondents		
Unemployed	42	10.4
Self-employed	227	56.2
Salaried employment	135	33.4
Educational attainment of respondents		
No formal education	15	3.7
Primary education	31	7.7
Secondary education	150	37.1
Tertiary education	208	51.5

[Table/Fig-1]: Socio-demographic characteristics of the respondents.

[Table/Fig-2] shows willingness of mothers to allow children resume school amidst COVID-19 pandemic. Majority of the respondents, 56.7% were willing to allow children return to school. The major reason for not allowing children return to school was lack of trust in the school's preventive measures, 80.6%.

Variable	Frequency (n=404)	Percent (%)
Willing to allow children return to school		
Yes	229	56.7
No	175	43.3
Reason for not being willing		
	(n=175)	
Cannot trust school preventive measures	141	80.6
Children may not be able to protect themselves	34	19.4

[Table/Fig-2]: Willingness of mothers to allow children resume school amidst COVID-19 pandemic.

[Table/Fig-3] shows factors affecting mothers' willingness to allow children resume school amidst COVID-19 pandemic. A significantly higher proportion of respondents who were 50 years and above, 77.9% were willing to allow children return to school when compared with those who were less than 30-years-old. ($\chi^2=22.730$, $p<0.001$). A significantly higher proportion of respondents who were single, 79.3% were willing to allow children return to school when compared with those who were married, 50.5%, ($\chi^2=23.120$, $p<0.001$). The higher proportion of respondents who had poor knowledge of preventive practices against COVID-19, (78.9%) were compared with those who had good knowledge of preventive practices, 46.4% and the difference in proportion was found to be statistically significant, ($\chi^2=37.686$, $p<0.001$).

Variable	Willing to allow children resume school (n=404)		χ^2	p-value
	Yes N (%)	No N (%)		
Age of respondents				
<30 years	36 (43.9)	46 (56.1)	22.730	<0.001
30-39 years	69 (51.5)	65 (48.5)		
40-49 years	57 (55.9)	45 (44.1)		
≥50 years	67 (77.9)	19 (22.1)		
Marital status				
Married	160 (50.5)	157 (49.5)	23.120	<0.001
Single*	69 (79.3)	18 (20.7)		
Employment status				
Unemployed	16 (38.1)	26 (61.9)	6.881	0.032
Self-employed	136 (59.9)	91 (40.1)		
Salaried employment	77 (57.0)	58 (43.0)		
Educational attainment of respondents				
Tertiary education	114 (54.8)	94 (45.2)	0.614	0.433
Secondary education and less	115 (58.7)	81 (41.3)		
Knowledge of mode of spread of COVID-19				
Good	73 (56.6)	56 (43.4)	0.001	0.979
Poor	156 (56.7)	119 (43.3)		
Knowledge of preventive practices against COVID-19				
Poor	101 (78.9)	27 (21.1)	37.686	<0.001
Good	128 (46.4)	148 (53.6)		

[Table/Fig-3]: Factors affecting mothers' willingness to allow children resume school. *Never married, separated, divorced; p-value <0.05 was considered statically significant

[Table/Fig-4] shows the predictors of mothers' willingness to allow children return to school amidst COVID-19 pandemic. The respondents who were <30 years of age were three times less likely to permit children to return to school when compared with those who were 50 years and above. (AOR=0.3, 95% CI: 0.2-0.7).

Similarly, the respondents who were in the age group 30-39 years were about three times less likely to allow children to return to school when compared with those were 50 years and above, (AOR=0.4, 95% CI: 0.2-0.8). The respondents who were married were about three times less likely to allow children to resume school when compared with those who were single, (AOR=0.4, 95% CI: 0.2-0.7). The respondents who had poor knowledge of preventive practices against COVID-19 were about three times more likely to allow children resume school when compared with those who had good knowledge of preventive practices against COVID-19. (AOR=2.8, 95% CI: 1.7-4.8).

Variable	Adjusted odds ratio	p-value	95% Confidence interval	
			Lower	Upper
Age of respondents				
<30 years	0.3	0.002	0.2	0.7
30-39 years	0.4	0.013	0.2	0.8
40-49 years	0.5	0.047	0.3	0.9
≥50 years	1			
Marital status				
Married	0.4	0.002	0.2	0.7
Single*	1			
Employment status				
Unemployed	0.6	0.215	0.3	1.3
Self-employed	1.1	0.880	0.7	1.7
Salaried employment	1			
Knowledge of preventive practices against COVID-19				
Poor	2.8	<0.001	1.7	4.8
Good	1			

[Table/Fig-4]: Predictors of mothers' willingness to allow children return to school amidst COVID-19 pandemic.

*Never married, separated, divorced; p-value <0.05 was considered statically significant

DISCUSSION

This study has shown a burning desire and quest from mothers for their children to return to school. Majority of mothers in this study wanted their children to return to school. The same desire to reopen schools was also documented in Israel where they stated that a bubble model for reopening school was used, which was based on rate of infection and spread in the locale [12]. This is very crucial, as it can be seen that in Nigeria, the rate of spread and mortality from COVID-19 is low compared to western world where schools are shut down. For instance, presently, 58,647 cases, and 1,111 deaths have been recorded in 36 states and the Federal Capital Territory [13]. Reopening of schools, if not well planned with all the preventive measures put in place, could be counter-productive. For instance, Israel was forced to close down schools after 2,026 students, teachers and staff tested positive for COVID-19 [12]. Furthermore, in South Korea, a resurgence of the infection was noted and about 1.8 million new students and older children in the elementary schools' return to class was put on hold, because some students were found to be infected [12].

Mothers who opted that their children should not go back to school, gave, lack of trust in the school authorities' ability to provide formidable protective measures as their reason. These findings on mothers' willingness to send their children to school is also supported by another study [13] where two thirds of the mothers agreed that they would not like to send their children to school. However, safety measures such as decreasing the number of children on buses, daily temperature checks of the children at school, alternating between in-person and online classes, regular testing of school staff for COVID-19, and older children wearing

masks have been seen by the mothers as the only criteria to reopen schools [13].

Several countries have taken some precautions and provided guidelines towards school reopening. For instance, in Denmark, students are required to maintain 2 meters of distancing in class with division of classes into one or more groups [14]. Norway's guidance to school reopening is similar to Denmark's, where students were limited to a class size of 15 students per class in primary school and 20 in middle school [15]. The Norwegian system took cognizance that social distancing may be difficult with young children and that, while this should be encouraged, "comfort and contact for the youngest children in day care should be paramount" [14].

In Taiwan, students are kept in a home room class with one form mistress, while children in nursery wear masks supplied by the government with desk separated from one another [16]. In Singapore, class sizes were maintained at about 30 students with desk spacing of 1-2 meters [17]. Similar measures are being taken in China where class size was reduced from 50 students to less than 30 [18].

This study showed that a significantly higher proportion of mothers who were single, were willing to allow children return to school when compared with those who were married. Anne J et al., noted that single mothers are more likely to be employed and also have a huge sense of responsibility to provide for their children's emotional and material needs [19]. To reduce these challenges, they will prefer to keep their children in school. Further, analysis revealed that these mothers with poor knowledge of preventive practices against COVID-19 were about three times more likely to allow children resume school when compared with those who had good knowledge of preventive practices against COVID-19. This could explain why they wanted their children return to school.

It was also noted that mothers less than thirty years' of age were three times less likely to permit children to return to school when compared with those who were over 50 years. Younger mothers are less likely to be employed in the area of study, so they will prefer to be with their children and teach them. Unlike their older counterparts who will rather be in their offices and would not have time to care for their children. Self-employed mothers are also more likely to send back their children to school in the COVID-19 pandemic. These are mothers who believe that their children's continued stay at home will interfere with and disturb their business and they may not also have adequate time to cater for them since they rarely stay at home.

Furthermore, educational status of the mother is a good predictor of school resumption as seen in this study. This could explain why majority of mothers were willing to send their children to school, since they are better educated on the low risk of infection in children [20]. Though, some countries are putting precautionary guidelines on school reopening, delay to reopen schools could lead to huge economic costs. In addition, potential harms of school closure are undoubtedly very high [8,21-23]. For instance, it was documented that closure of schools increased vulnerability to physical and sexual abuse of the female child. Transactional sex was commonly reported among vulnerable female children, since their families could not provide basic needs [24].

Limitation(s)

This work is limited by the fact that school readiness among mothers in the multiple centers in the country was not ascertained. Also, the questionnaire used requires external validation.

CONCLUSION(S)

Majority of mothers preferred that children should return to school. The younger age group and married women were less likely to allow children go back to school. The respondents who had poor knowledge of preventive practices were more desirous that children should return to school.

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PLAGIARISM CHECKING METHODS: [\[Jain H et al.\]](#)

- Plagiarism X-checker: Aug 17, 2020
- Manual Googling: Oct 07, 2020
- iTenticate Software: Dec 12, 2020 (19%)

ETYMOLOGY: Author Origin**AUTHOR DECLARATION:**

- Financial or Other Competing Interests: None
- Was Ethics Committee Approval obtained for this study? Yes
- Was informed consent obtained from the subjects involved in the study? Yes
- For any images presented appropriate consent has been obtained from the subjects. NA

Date of Submission: **Aug 10, 2020**Date of Peer Review: **Sep 17, 2020**Date of Acceptance: **Oct 07, 2020**Date of Publishing: **Dec 15, 2020**