



COVID-19: Mental and Social Health-Related Complaints among Children and Adolescents in Nigeria: Parents'/Caregivers' Perception – An Online Survey

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Authors' contributions

This work was carried out in collaboration between both authors. Author DCB conceptualized the study and design, interpreted the data, wrote up the drafts, managed the literature searches and prepared the manuscript. Author KAK performed the statistical analyses, interpreted the data and revised the manuscript for intellectual content and clarity. Both authors approved the final version of the manuscript.

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ABSTRACT

Aim: This survey aimed to highlight the mental and social health-related complaints of children and adolescents during the lockdown in Nigeria.

Study Design: Descriptive cross-sectional.

Place and Duration of Study: Respondents from all six geopolitical zones in Nigeria, from May 9 to June 8, 2020. Nigeria.

Methodology: A snowball sampling technique was used to recruit 260 respondents, consisting of parents/caregivers of children 18 years and below from states affected by the lockdown. An online

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self-administered questionnaire was used to collect data. Logistic regression analysis was done on mental health-related complaints (dependent variables), with participation in the radio/TV sessions, presence of computer at home, access to the internet, and income-level of parents as independent variables. Adjusted odds ratios with 95% confidence intervals were calculated.

Results: The median age of respondents was 38 years (with an interquartile range of 9); 155 (59.7%) were females, 239 (91.9%) married, 167 (64.2%) had tertiary education, 83 (31.9%) were low-income earners, 202 (77.7%) had computer devices at home, 243 (93.5%) had internet access at home. Logistic regression revealed that children who participated in the radio/TV sessions were more likely to complain of being bored; and children without internet access at home were more likely to complain of being unhappy, express anxiety/fear and show signs of stress. However, 113 (43.4%) agreed their children learnt a new skill, and 159 (61.1%) agreed there was increased family bonding during the COVID-19 lockdown.

Conclusion: The pandemic threatens the mental and social wellbeing of Nigerian children. Policymakers must put in place measures that address factors which increase the likelihood of mental and social health-related complaints among children by improving access to the internet, subsidizing costs and developing child-focused mental health services with new strategies to reach those already affected.

Keywords: Nigeria; children; COVID-19; mental; social; impact.

1. INTRODUCTION

The on-going pandemic due to the coronavirus disease 2019 (COVID-19) is profoundly affecting lives around the world. Although the continent of Africa was the last affected by the viral outbreak before South America, the rapid spread across virtually all countries has become evident [1]. As most countries embark on restricting physical contacts, partial or complete lockdowns and halting of economic activities of caregivers, these preventive measures compel a form of change to the psychosocial milieu of children and adolescents in the affected countries [2]. The mitigating measures have the potential to significantly affect the psychosocial wellbeing of children and adolescents [3]. Kindergartens, primary and secondary schools have been closed, physical and social contacts strongly restricted and out-of-home relaxation or free time activities interrupted. Parents are now compelled to support their children with homeschooling, and also work from home. Also, the closure of churches, mosques and other religious gatherings may further affect moral choices and has the potential to cause an upsurge in delinquent activities and indulgence in substance abuse [4]. The likely effects of prolonged homestay on children and adolescents may either be positive or negative. The former may occur when the current outbreak brings about opportunities for increased bonding among children and their parents or caregivers and also cause improvement in personal skills [5]. However, the latter which is often of concern may include increased anxiety levels, lack of

contact with peers, and reduced opportunities to regulate stressors that may arise from domestic violence or child abuse [3]. According to UNICEF, Nigerian children experience some form of violence or child abuse as frequently as three out of every five, with 1 in 4 girls and 1 in 10 boys being victims of a sexual nature [6], hence, the challenge posed by the ongoing pandemic risks causing an upsurge which can affect the mental and social wellbeing of children in Nigeria.

A child's response to crisis will depend on previous exposure to emergencies, family structure, socio-economic level and physical/mental wellbeing and cultural background [7]. Children are particularly vulnerable because of their limited understanding of the unique circumstances occurring at this time of their development. Studies have also shown that in the event of crises, the mental wellbeing of children is also adversely affected [8,9]. A study in China that screened 320 children and adolescents for behavioural and emotional distress due to the COVID-19 pandemic showed that irritability, clinginess, distractions and increased fear of exposure of family members to the virus were among the emotional and behavioural problems identified which were relieved by the use of entertainment via social media and physical exercise [8]. Also, another study by Orgiles et al. [9] that surveyed parents perception of the psychological burden of the quarantine among children (3-18 years) in Spain and Italy, reported changes in emotional state and behaviours with symptoms like boredom,

feelings of loneliness, being worried, increased sleep time, restless, nervousness and increased use of screen time with less physical activity.

Studies have suggested the use of several measures to help ameliorate the effect of prolonged lockdowns on children's mental and social health and include supervised social media involvement, increased physical activity and routine learning schedules [10]. With the prolonged closure of schools, children have had to suddenly shift from the traditional face-to-face method to learning via the social media or a blended approach, which would lead to increased screen time. But there remains inconclusive evidence as regards the effect of internet use at home having any social or psychological effect on the wellbeing of children and adolescents [11,12]. Multiple factors, therefore, may impact on the mental and social wellbeing of children and adolescents in sub-Saharan Africa where technological advancement lags behind the rest of the world. Nigeria is similarly not left out, as parents are faced with varied challenges like supervising their children's education from home as well as sustaining their means of livelihood. The federal government of Nigeria in a bid to limit the effect of school closure on children, recommended online and radio/TV learning sessions [13]. Whether the availability of internet services at home or on-going TV/radio learning sessions as a means to sustain homeschooling has an impact on the mental and social wellbeing of children is unknown in our setting.

Although the WHO had reiterated the threats that COVID-19 would likely have on the wellbeing of children in sub-Saharan Africa both due to the challenges posed by the virus and the response, few studies have looked at the impact of the pandemic on the mental health of children and were mainly in resource-rich settings [8,14,15]. With the pandemic in Nigeria presently in the phase of community transmission [16] and partial lockdown restrictions occurring in different states, this paper sought to assess the effect on the mental and social wellbeing of children and adolescent by assessing for complaints suggestive of mental and social health disturbances as perceived by their parents or caregivers, taking into cognizance the homeschooling methods made available to aid learning in Nigerian homes.

Pre-COVID epidemiological surveys in sub-Saharan Africa including Nigeria have

demonstrated that mental health problems are common among children and adolescents [17]. However, despite the plethora of child health initiatives in Nigeria such as the National Child Health Policy (NCHP), Maternal and Child Health Integrated Programme (MCHIP), Integrated Maternal, Newborn and Child Health strategy (IMNCH) which all promote maternal and newborn interventions to reduce mortality [18,19], as well as others addressing preventable childhood diseases like HIV, tuberculosis, malaria and pneumonia [20] whose initiatives had significantly steered child health policies in Nigeria with little attention being given to children and adolescent mental health. A review by Atilola and colleagues [21], reported that child and adolescent mental health in Nigeria was in a state of neglect and particularly highlighted the fact that determinants like poverty, malnutrition, poor education, child labour and under-age marriages were significant risks for mental health problems among children and adolescents. In the event of the novel threat facing the world and also Nigeria, it is plausible that the quest to protect the mental wellbeing of children and adolescents may further lag. It is certainly of immense importance now to scale up preventive and pre-emptive strategies like "early education, support for vulnerable families, wealth redistribution, and child-sensitive social protection schemes" [21] to strengthen curative strategies to help minimise the mental and social impact of COVID-19 on children and adolescents in Nigeria.

2. METHODOLOGY

Nigeria is divided into six geopolitical zones which comprises the 36 states and the Federal Capital Territory (FCT). The States composition of the geopolitical zones is as follows: South-East (Abia, Anambra, Ebonyi, Enugu, Imo), South-South (Akwa Ibom, Bayelsa, Cross River, Rivers, Delta, Edo), South West (Ekiti, Lagos, Ogun, Ondo, Osun, Oyo), North-East (Adamawa, Bauchi, Borno, Gombe, Taraba, Yobe), North-Central (Benue, Kogi, Kwara, Nasarawa, Niger, Plateau, FCT), North-West (Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto, Zamfara).

This study was a rapid online cross-sectional descriptive survey, and was conducted from May 9 to June 8, 2020 (during the time of the national COVID-19 pandemic lockdown with interstate travel restrictions, school and market closures). The study population included parents or caregivers in all geopolitical zones of the country,

who have children within the paediatric age group (0-18 years) and who gave consent.

The sample size was estimated using the Cochran formula for proportions $N_0 = Z^2pq / e^2$. We assumed $p = 11.3\%$ obtained from the prevalence of parents who completed a child health survey in a previous study [22]. $N_0 =$ sample size, $Z = 1.96$ and $e = 5\%$, hence, $N_0 = 154$. To adjust for 30% non-response an estimated minimum sample size of 220 was calculated.

We used a questionnaire, which was administered through an instant message via WhatsApp Application and using Google Doc Form. These accessible populations also shared and forwarded the survey link to their contacts and various groups to keep the survey widely distributed as far as possible, since face-to-face interviewer administration of questionnaires was not possible due to the on-going lockdown.

The questionnaire used in this study was designed by the authors and reviewed by senior health professionals for content validity. Pilot testing was done among seven randomly selected doctors and parents to observe the ease of self-administration of the questionnaire. Ambiguous questions were corrected. Data from the pilot study were not included in the final analysis.

The two-part semi-structured questionnaire was used to derive information. The first part asked about the respondents' socio-demographics, their average monthly income level, presence of a computer/tablet or phone device, access to the internet at home and children's participation in on-going radio/TV learning sessions. The second part asked questions which assessed parents' perception of the psychosocial effect of COVID-19 restrictions on their children or adolescents. The parents' perspective of the children's psychosocial wellbeing was assessed using a set of 14 different questions grouped into 3 categories. Category I: A general question was asked whether their children had ever complained about the on-going COVID-19 and the lockdown measures in place. Category II: assessed the mental wellbeing of their children and consisted of 8 sets of questions with a 'yes' / 'no' option. Category III, aimed to assess the effect on the social wellbeing of their children, was answerable using a 5-item Likert scale format ranging from "1" strongly disagree to "5" strongly agree. The reliability of the 5-item

questionnaire was good (Cronbach's alpha .67). The six geopolitical zones in Nigeria were used to assess the spread of respondents and classify them accordingly.

2.1 Operational Definitions

The operational definitions used in the study were adapted from previous studies [23,24] 1. Parent/Caregiver: defined as either mother or father or any other family members who were primarily responsible for attending to their child's healthcare needs. 2. Mental and social related complaints were defined as any verbal or physical or behavioural action or inaction by a child due to the restriction of movements and reported to and or perceived by parent/caregiver as a strain on their ward/child's mental/social wellbeing. Respondents average monthly income earnings were categorized into three groups, adapted from a survey by Robertson et al. [25]; Less than N100,000 = low income; N100,000 - N499,999 = Middle income; and N500,000 and above as high-income earners.

2.2 Inclusion Criteria

Parents who gave consent, who resided in any state in Nigeria affected by COVID outbreak and had experienced either partial or total lockdowns, own a smartphone with access to the internet and have the WhatsApp application installed.

2.3 Exclusion Criteria

Respondents who had no children within the paediatric age bracket (0-18 years).

2.4 Data Analyses

Completed questionnaires were automatically imported to Excel spreadsheet and analysed using SPSS v 26 (SPSS Inc., Chicago, Illinois, USA). Simple frequencies and cross tables were performed and relevant tables were developed. Regression analysis was done using complaints of being bored, complaints of being unhappy, expression of fear/anxiety/worry, showing signs of stress, excessive sleeping, and reduced sleeping episodes as reported by the caregivers, as dependent variables. The following independent variables were included in the regression model: participation in the radio/TV learning sessions, presence/absence of a computer device at home, internet access at home, and the income level of parents. P-value of less than 0.05 was considered statistically

significant. Adjusted odds ratios were obtained for the dependent variables, using the above independent variables as predictors. For the logistic regression part of the analysis, variables were made dichotomous. For instance, the income level, which has values of low income, middle income and high income, was dichotomized to reflect as low income vs middle/high income for regression analysis.

3. RESULTS AND DISCUSSION

3.1 Sociodemographic Characteristics of Respondents

Table 1 shows the sociodemographic characteristics of the respondents. Of the 260 respondents, females were 155 (59.67), and their median age was 38 years (IQR: 9), 239 (91.9%) were married, 167 (64.2%) level of education had tertiary, 131 (50.4%) had three to four number of children and 57.7% had children the between 5-9 year age group, 83 (31.9%) were low-income earners, 202 (77.7%) had computer devices at home, 243 (93.5%) had internet access at home and 92 (35.4%) had children/wards participate in the TV/radio teaching sessions organized by the ministries of education for children and adolescents for homeschooling. Although respondents from all six geopolitical zones in Nigeria were represented as seen in Table 1, the majority of them were from the south-south (171, 65.8%) and north-central (27, 10.4%) geopolitical zones. The least represented regions were the north-west (9, 3.5%) and north-east (0, 0%) geopolitical zones.

3.2 Mental Health-Related Complaints among Children and Adolescents in Nigeria

Among all respondents, 225 (86.5%) reported that their children had complained about the prolonged lockdown, closure of schools and that they were unable to visit friends due to the COVID-19 lockdown. Questions were further asked to all respondents if their children/wards expressed or complained about some mental-health related symptoms. This is seen in Table 2. The majority of respondents (193, 74.2%) cited that their children had expressed being bored, 89 (34.2%) expressed being anxious/ worried/ fear, 85 (32.7%) expressed being sad/unhappy, 78 (28.1%) reported their children showed signs of stress, 105 (40.4%) reported their children slept excessively and 58 (22.3%) had poor/ reduced

sleep patterns. About 174 (66.9%) reported their children to have increased appetite whereas 28 (10.8%) had poor/reduced appetite.

3.3 Predictors of Mental Health-Related Complaints

Logistic regression analysis identified some predictor variables for the mental health-related complaints. Complained of being bored (Annex A): respondents whose children participated in the radio/TV sessions were twice likely to report that their children complained of being bored than respondents whose children did not participate in the sessions (AOR: 2.48; 95% CI: 1.27-4.81); complained of being unhappy (Annex B): respondents without internet access at home were thrice more likely to report that their children complained of being unhappy than those with internet access at home (AOR: 3.30; 95% CI: 1.04-10.55); expressed anxiety/worries/fear of virus infection (Annex C): those without internet access at home were over five times more likely to report that their children expressed anxiety/worries/fears of virus infection (AOR: 5.44; 95% CI: 1.59-18.69); showed signs of stress (Annex D): respondents without internet access at home were about seven times more likely to show signs of stress compared with respondents with internet access at home (AOR: 6.94; 95% CI: 2.02-23.80); increased sleep duration (Annex E): respondents whose children participated in the radio/TV sessions were more likely to sleep excessively as reported by their parents/wards when compared with children who did not participate in the radio/TV sessions (AOR: 2.31; 95% CI: 1.36-3.95); reduced / poor sleep episodes (Annex F): parents of the low-income category were more likely to report that their children complained of reduced or poor sleep than those of middle/high-income category (AOR: 2.54; 95% CI: 1.32-4.89).

3.4 Social Health-Related Effects among Children and Adolescents in Nigeria

Using a five-point Likert scale, respondents were asked about the effect of the lockdown on the social behaviour of their wards/children as shown in Table 3. Most respondents (227, 87.3%) disagreed or strongly disagreed that the COVID-19 lockdown encouraged their wards/ children to follow bad company within the neighbourhood; similarly, majority of them (227, 87.3%) disagreed or strongly disagreed that their wards/ children had a form of an increase in social vices,

Table 1. Sociodemographic characteristics of respondents

Variables	Frequency	Percent (%)
Gender		
Female	155	59.6
Male	105	40.4
Marital status		
Married	239	91.9
Single	10	3.8
Separated	9	3.5
Divorced	2	0.8
Educational status		
Tertiary	167	64.2
Secondary and below	93	35.8
Number of children under respondents' care		
1-2	112	43.1
3-4	131	50.4
More than 4	17	6.5
Age categories of respondents' child(ren) **		
0-4 years	156	60.0
5-9 years	150	57.7
10-14 years	90	34.6
15-18 years	43	16.5
Presence of a computer device at home		
Yes	202	77.7
No	58	22.3
Access to the internet		
Yes	243	93.5
No	17	6.5
Participate in Radio/ TV teaching sessions		
Yes	92	35.4
No	168	64.6
Monthly income		
Low income	83	31.9
Middle income	141	54.2
High income	36	13.8
Geopolitical zones of respondents		
South-south	171	65.8
South-east	18	6.9
South-west	35	13.5
North-central	27	10.4
North-west	9	3.5
North-east	0	0.0

Table 2. The mental health effects of the COVID-19 lockdown on children as reported by parents

Complaints of children	Yes (%)	No (%)
Being bored	193 (74.2)	67 (25.8)
Being unhappy/ sad	85 (32.7)	175 (67.3)
Express anxiety/worry/fears of virus infection	89 (34.2)	171 (65.8)
Show signs of stress	73 (28.1)	187 (71.9)
Increased sleep duration	105 (40.4)	155 (58.6)
Reduced or poor sleep	58 (22.3)	202 (69.7)
Increased appetite	174 (66.9)	86 (33.1)
Reduced/ poor appetite	28 (10.8)	232 (89.2)

and 176 (67.7%) disagreed or strongly disagreed sites /movies both on social media. On the other there was increased exposure to uncensored hand, 113 (43.4%) of the respondents agreed or

strongly agreed that their ward/ children learnt a new skill or craft, and 159 (61.1%) agreed or strongly agreed that the lockdown increased bonding with other members of the family.

3.5 Discussion

This study aimed to explore the numerous mental and social health-related complaints among children and adolescents associated with the current COVID-19 pandemic and restrictions to curb the spread of the disease. Owing to the impact of the pandemic, many children and adolescents around the globe including Nigeria, currently have substantially fewer opportunities to interact face-to-face with their peers in their social network, more so, at a time when this is crucial for their optimal development [26]. Being on lockdown for protracted periods have been reported to affect the mental health of adolescents and young people because of the influence of peer acceptance in this stage of their development outside the family household [26].

Our study revealed the majority (86.5%) of respondents cited that their children/wards had complained about being isolated due to the lockdown, closure of schools and being unable to see friends. It was quite interesting to note that Nigerian children had vocalized their feelings to their parents, which suggests a subtle threat to the wellbeing of their mental health. Our findings are congruent with the posit that even if physical distancing measures are temporary, for many children and adolescents, a few months represents a large fraction of their lives and has a potential to harm the already vulnerable groups [27]. The majority of respondents (74.2%) cited that their children had expressed being bored and about one-third (34.2%) expressed being anxious/ worried or afraid of contracting the virus

and one-third (32.7%) also expressed being sad/unhappy about the stringent restrictive measures. This was similar to findings from a study in China [14] that assessed the mental health status of children during the coronavirus outbreak in Hubei Province, which reported that about 22.6% and 18.9% of children reported depressive and anxiety-related symptoms, respectively. While this study did not particularly assess depression in children, the reports of parents in this study are similar to other studies in China [14,28] which showed that being worried significantly increased the risk of depressive symptoms.

Furthermore, about over one-quarter (28.1%) of children as reported by their parents had already begun to show signs of stress. This is of concern because the closure of schools, leisure parks and religious centres have reduced significantly the opportunities to control stress [3] and may even be worsened in dysfunctional family settings with increased risks of parental mental stress, child abuse/misuse and domestic violence. Other mental health-related health complaints noted among the children confined at home in our study were increased sleep duration as reported by two-fifth (40.4%) of respondents whereas about one-fifth (22.3%) were reported to have had reduced sleep patterns and was anticipated in a report by Becker and Gregory [29]. Also, about two-thirds (66.9%) were reported to have increased appetite and about one-tenth (10.8%) had poor/reduced appetite. While this study did not particularly aim at making a diagnosis of psychological disorders according to DSM-V criteria, similar distortions of sleep and feeding patterns were reported in a study conducted among children aged 3 – 18 years during the COVID-19 epidemic in the Shaanxi province, China [8].

Table 3. Respondents’ level of agreement on how the lockdown has affected the social behaviour of their children

Questions	Strongly agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly disagree (%)
1. Follow bad company or gang within the neighborhood	4 (1.5)	13 (5.0)	16 (6.2)	93 (35.8)	134 (51.5)
2. Increase in social vices e.g. drinking etc.	5 (1.9)	5 (1.9)	23 (8.8)	98 (37.7)	129 (49.6)
3. Learnt a new skill or craft e.g. cooking, online courses etc.	36 (13.8)	77 (29.6)	64 (24.6)	46 (17.7)	37 (14.2)
4. Increased bonding with other members of the family	71 (27.3)	88 (33.8)	43 (16.5)	14 (5.4)	44 (16.9)
5. Increased exposure to uncensored sites/movies on social media	12 (4.6)	25 (9.6)	47 (18.1)	73 (28.1)	103 (39.6)

This study revealed that the mental health-related complaints cited by respondents had relationships with some sociodemographic characteristics. The absence of a computer device at home, lack of internet access at home and parental low-income status were significantly associated with complaints of being bored, unhappy, expressing anxiety/worry/fears and altered sleep durations. Our findings are possibly explainable because as children who have computer and internet access at home would be more likely engaged with other available options on other media platforms that might keep them busy. Besides, low-income earning parents might not be able to afford or provide some of these amenities to keep their children engaged, and are less likely to be able to provide stable electricity since these amenities to a large extent are driven by electricity. Quite interesting also was the finding that children who participated in the radio/TV learning sessions were reported to have complained of being bored and had increased sleep duration. It may be that the sessions were not as engaging as face-to-face teaching sessions and unsurprisingly were among those children from homes without internet access and whose parents were less resourced.

Certain measures are desirable to relieve the mental distress resulting from the lockdown. Our study highlights the possibility of the presence of home-based internet-enabled devices and related infrastructures to facilitate social interactions and entertainment may help ameliorate the observed mental health-related complaints among children and adolescents in Nigeria. Our findings buttress the position in a narrative review by Wigg et al. [30] that argue that when the resources of the internet and social media are properly utilized can support the mental and social wellbeing of children and adolescents by curtailing the symptoms of stress, anxiety and feelings suggestive of depression. Media entertainment, increasing parental engagement/communication with children to allay concerns and fears, music therapy, playing collaborative games are among the measures that have been effectively utilized in children [8]. Although some countries faced with similar mental health risks also identified providing online services as an appropriate method to bridge the gap in mental health care for children with challenges, it will be valuable if parents/caregivers in Nigeria, be encouraged to utilize the WHO, NCDC guidelines and factsheets to

help them safeguard the mental health of their children and adolescents in these trying times.

Furthermore, our study showed that the lockdown did not encourage increased social vices /delinquent acts or negative peer influence among children or adolescents during the COVID-19 lockdown as cited by most (87.3%) of respondents. About two-thirds (67.7%) of respondents also disagreed there was increased exposure to uncensored sites/ movies on social media. Besides, about two-fifths (43.4%) of respondents agreed that their children acquired a new skill/ craft and about three-fifths (61.1%) agreed the lockdown increased bonding with other members of the family. Our findings suggest that the likely effects of prolonged homestay on children and adolescents may not all be negative, as evidenced by the majority of respondents citing opportunities for increased bonding among children and parents or caregivers and also improvement in personal skills. This was further supported by the reports that delinquent acts and negative peer-pressure were less likely observed. This is plausible because, in the Nigerian setting, the communal or extended family- household style of living is common. Parenting roles are not left for biological parents alone, relatives and neighbours contribute to the upbringing of children. Hence the lockdown could have afforded caregivers and/or guardians the opportunity to supervise their younger relatives closely. Our finding of increased family bonding was similarly reported in a study among British parents that revealed four in five cited their families formed stronger bonds during the lockdown [31].

On the contrary, a minority of respondents differed in their responses to the aforementioned "positive effects" of the lockdown, which implies a proportion of children are exposed to threats that may hamper their total wellbeing as such, should not be ignored. Children and adolescents in homes where there are family members with substance abuse and or alcohol problems are at increased risk of having their physical, mental and social health more affected than before the COVID-19 restrictions. Also, parents must endeavour to ensure social media sites are more cautiously censored to limit children from being sexually exploited, and friendly monitoring of their wards' online activities including contents in apps, games and ratify online privacy settings [2].

This exploratory study was conducted in the heat of the lockdown and attempted to understand the ways the COVID-19 pandemic had affected the mental and social wellbeing of children in Nigeria. However, our findings are limited to children of parents who reside in Nigeria with knowledge on the use of the internet, with internet access on their mobile devices and could read and understand the English Language. The sample size was small and although the respondents cut across the six geopolitical zones in Nigeria, there was an unequal representation; therefore, findings should be generalized with caution. Since respondents' report on the variables in the study was used as a proxy for their children/wards, the responses are from the perspective of their caregivers and may be prone to bias. It was also not verified if prior to the lockdown, children already had mental health-related complaints or disorders. A detailed longitudinal research needs to be done to adequately and appropriately assess the mental and social impact of the lockdown and restriction of social/physical gatherings on the children assuming the dynamics of the pandemic in Nigeria remain fairly unchanged. Also, the study was done at a time when there were varying degrees of lockdowns and movement restrictions and these were not considered.

4. CONCLUSION

The ongoing COVID-19 pandemic has affected the mental and social wellbeing of Nigerian children. A considerable proportion of children as cited by their parents/ caregivers expressed being bored, anxious, stressed, had alterations in appetite and sleep durations and these complaints were more likely among low-income, less educated, families without internet-enabled devices or good internet access. However, during the lockdown due to COVID-19 in Nigeria, many children have learnt a new skill or craft, and there has been increased bonding among functional families.

5. RECOMMENDATION

Policymakers in Nigeria should put in place measures to address underlying factors that increase the likelihood of an upsurge in mental and social health-related complaints among children and adolescents during the lockdown. For instance, the government can improve access to the internet by subsidizing costs to limit worsening of the subtle threats because children

who may benefit the most from home internet access are the very ones least likely to have it. Furthermore, the health authorities need to strengthen child-focused mental health services so as to reach the already affected children and adolescents in Nigeria.

CONSENT

A pre-information about the aims of the research were included at the start of the survey which also highlighted that the study was to help provide evidence of the likely ongoing mental and social-related complaints during the lockdown. The findings were to serve as a tool for advocacy to create awareness of mental and social health related challenges among children and adolescents and to improve provision and access to child mental health focused services. It was explicitly stated prior to commencement of the survey to tick the option 'yes' if consent was given. Authors also declare that all respondents were anonymous, and unknown to the authors; confidentiality was assured and information divulged would in no way negatively impact on the psychosocial wellbeing of participants.

ETHICAL APPROVAL

Authors hereby declare that although this research did not directly physically involve human face to face contact the appropriate ethics committee have granted approval and survey was performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

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COMPETING INTERESTS

Authors have declared that no competing interests exist. The tools used for this research were novel and reported findings are not to be utilized as an avenue for any litigation but for the advancement of knowledge. Also, the research was funded by personal efforts of the authors.

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ANNEX

Please check this section (corrected)

Annex A. Relationship between some sociodemographic variables and children who complained of being bored as reported by parents

Variable	Being bored		p-value	Adjusted Odds ratio (OR)	95% CI
	Yes	No			
Radio/TV sessions					
Participated	78 (84.8)	14 (15.2)	0.01*	2.48	1.27-4.81
Did not participate ^R	115 (68.5)	53 (31.5)			
Computer device at home					
Absent	50 (86.2)	8 (13.8)	0.14	1.95	0.80-4.77
Present ^R	143 (70.8)	59 (29.2)			
Internet access at home					
Absent	16 (94.1)	1 (5.9)	0.18	4.26	0.51-35.52
Present ^R	177 (72.8)	66 (27.2)			
Income level of parents					
Low	64 (77.1)	19 (22.9)	0.70	0.88	0.45-1.71
Middle/High ^R	129 (72.9)	48 (27.1)			

* Statistically significant (p<0.05)^R Reference category

Annex B. Relationship between some sociodemographic variables and children who complained of being unhappy as reported by parents

Variable	Being unhappy		p-value	Adjusted Odds ratio (OR)	95% CI
	Yes	No			
Radio/TV learning sessions					
Participated	32 (34.8)	60 (65.2)	0.85	1.06	0.60-1.86
Did not participate ^R	53 (31.5)	115 (68.5)			
Computer device at home					
Absent	30 (51.7)	28 (48.3)	0.06	1.93	0.97-3.85
Present ^R	55 (27.2)	147 (72.8)			
Internet access at home					
Absent	12 (70.6)	5 (29.4)	0.04*	3.30	1.04-10.55
Present ^R	73 (30.0)	170 (70.0)			
Income level of parents					
Low	36 (43.4)	47 (56.6)	0.26	1.42	0.78-2.59
Middle/High ^R	49 (27.7)	128 (72.3)			

* Statistically significant ($p < 0.05$)^R Reference category

Annex C. Relationship between some sociodemographic variables and children who expressed fear/anxiety/worries as reported by parents

Variable	Expressed fear / anxiety / worries		p-value	Adjusted Odds ratio (OR)	95% CI
	Yes	No			
Radio/TV learning sessions					
Participated	36 (39.1)	56 (60.9)	0.29	1.35	0.78-2.35
Did not participate ^R	53 (31.5)	115 (68.5)			
Computer device at home					
Absent	28 (48.3)	30 (51.7)	0.54	1.25	0.62-2.51
Present ^R	61 (30.2)	141 (69.8)			
Internet access at home					
Absent	13 (76.5)	4 (23.5)	0.01*	5.45	1.59-18.69
Present ^R	76 (31.3)	167 (68.7)			
Income level of parents					
Low	37 (44.6)	46 (55.4)	0.19	1.49	0.82-2.70
Middle/High ^R	52 (29.4)	125 (70.6)			

* Statistically significant ($p < 0.05$)^R Reference category

Annex D. Relationship between some sociodemographic variables and children showing signs of stress as reported by parents

Variable	Signs of stress		p-value	Adjusted odds ratio (OR)	95% CI
	Yes	No			
Radio/TV learning sessions					
Participated	28 (30.4)	64 (69.6)	0.68	1.14	0.63-2.05
Did not participate ^R	45 (26.8)	123 (73.2)			
Computer device at home					
Absent	26 (44.8)	32 (55.2)	0.19	1.63	0.79-3.37
Present ^R	47 (23.3)	155 (76.7)			
Internet access at home					
Absent	13 (76.5)	4 (23.5)	0.002*	6.94	2.02-23.80
Present ^R	60 (24.7)	183 (75.3)			
Income level of parents					
Low	30 (36.1)	53 (63.9)	0.59	1.19	0.63-2.26
Middle/High ^R	43 (24.3)	134 (75.7)			

* Statistically significant ($p < 0.05$)^R Reference category

Annex E. Relationship between some sociodemographic variables and children with increased sleep duration as reported by parents

Variable	Increased sleep duration		p-value	Adjusted odds ratio (OR)	95% CI
	Yes	No			
Radio/TV learning sessions					
Participated	50 (54.3)	42 (45.7)	0.002*	2.31	1.36-3.95
Did not participate ^R	55 (32.7)	113 (67.3)			
Computer device at home					
Absent	34 (58.6)	24 (41.4)	0.08	1.86	0.94-3.70
Present ^R	71 (35.1)	131 (64.9)			
Internet access at home					
Absent	11 (64.7)	6 (35.3)	0.30	1.84	0.59-5.73
Present ^R	94 (38.7)	149 (61.3)			
Income level of parents					
Low	42 (50.6)	41 (49.4)	0.30	1.37	0.76-2.45
Middle/High ^R	63 (35.6)	114 (64.4)			

*Statistically significant ($p < 0.05$)^R Reference category

Annex F. Relationship between some sociodemographic variables and children with decreased sleep duration as reported by parents

Variable	Decreased sleep duration		p-value	Adjusted Odds ratio (OR)	95%CI
	Yes	No			
Radio/TV learning sessions					
Participated	21 (22.8)	71 (77.2)	0.99	1.00	0.53-1.88
Did not participate ^R	37 (22.0)	131 (78.0)			
Computer device at home					
Absent	15 (25.9)	43 (74.1)	0.39	0.70	0.30-1.59
Present ^R	43 (21.3)	159 (78.7)			
Internet access at home					
Absent	7 (41.2)	10 (58.8)	0.15	2.33	0.74-7.36
Present ^R	51 (21.0)	192 (79.0)			
Income level of parents					
Low	28 (33.7)	55 (66.3)	0.01*	2.54	1.32-4.89
Middle/High ^R	30 (16.9)	147 (83.1)			

*Statistically significant ($p < 0.05$)^R Reference category

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