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ORIGINAL ARTICLE

Burden of COVID-19 Pandemic on Adolescents' Quality of Life: A Cross-Sectional Study among Secondary School Students in North-Central Nigeria

Le Poids de la Pandémie de Covid-19 sur la Qualité de vie des Adolescents : Une Étude Transversale Parmi les Élèves du Secondaire DANS LE Centre-Nord du Nigeria

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ABSTRACT

BACKGROUND: The Coronavirus disease 2019 (COVID-19) has caused millions of mortalities globally. Although the prevalence and fatality rates of COVID-19 among adolescents is low, its impact on their health-related quality of life (HRQoL) is not adequately known. This study was carried out to determine the burden COVID-19 pandemic has on the HRQoL of adolescents.

METHODS: A cross-sectional descriptive study was carried out among adolescents in public and private secondary schools in Jos North Local Government Area of Plateau State. A multi-stage sampling technique was employed to select the schools and recruit the participants in April/May 2021. Data was collected using a self-administered questionnaire containing the participants' socio-demographic characteristics, questions on being burdened by COVID-19 pandemic, and the KIDSCREEN-10 tool for assessing the HRQoL. The data was analyzed using SPSS version 25.0 and a p-value of < 0.05 was regarded as significant.

RESULTS: A total of 405 adolescents participated in the study with a mean age of 14.6 ± 2.06 years. Majority (52.8%) of the participants were girls. More than half (53.3%) of the participants reported being burdened by the COVID-19 pandemic. Also, 45.7% of the participants experienced a lower HRQoL. There was a statistically significant association between being burdened by the COVID-19 pandemic and their HRQoL ($\chi^2 = 7.108$, $p = 0.01$). In addition, the participants' HRQoL was significantly associated with their age ($\chi^2 = 5.112$, $p = 0.02$).

CONCLUSION: This study highlights the significant burden of COVID-19 pandemic on adolescents' wellbeing. Therefore, there is the need to intensify health intervention strategies among adolescents to reduce the physical, emotional, and mental burden imposed by the COVID-19 pandemic in order to optimize their quality of life. **WAJM 2022; 39(10): 1021–1025.**

Keywords: Adolescents, Secondary school, COVID-19, Health-related quality of life (HRQoL), Jos.

RÉSUMÉ

CONTEXTE: La maladie de coronavirus 2019 (COVID-19) a causé des millions de décès dans le monde. Bien que la prévalence et les taux de mortalité du COVID-19 chez les adolescents soient faibles, son impact sur leur qualité de vie liée à la santé (QVLS) n'est pas suffisamment connu. Cette étude a été menée pour déterminer le poids de la pandémie de COVID-19 sur la QVLS des adolescents.

MÉTHODES: Une étude descriptive transversale a été menée parmi les adolescents des écoles secondaires publiques et privées de la région de Jos North Local Government Area de l'Etat du Plateau. Une technique d'échantillonnage à plusieurs degrés a été utilisée pour sélectionner les écoles et recruter les participants en avril/mai 2021. Les données ont été collectées à l'aide d'un questionnaire auto-administré contenant les caractéristiques sociodémographiques des participants, des questions sur le fardeau que représente la pandémie de COVID-19, et l'outil KIDSCREEN-10 pour évaluer la qualité de vie. Les données ont été analysées à l'aide de SPSS version 25.0 et une valeur $p < 0,05$ a été considérée comme significative.

RÉSULTATS: Un total de 405 adolescents ont participé à l'étude avec un âge moyen de 14,6 ± 2,06 ans. La majorité (52,8%) des participants étaient des filles. Plus de la moitié (53,3%) des participants ont déclaré être accablés par la pandémie de COVID-19. En outre, 45,7 % des participants ont connu une baisse de leur qualité de vie. Il y avait une association statistiquement significative entre le fait d'être accablé par la pandémie de COVID-19 et leur QVLS (?2 = 7,108, p = 0,01). De plus, la QVLS des participants était significativement associée à leur âge (?2 = 5,112, p = 0,02).

CONCLUSION: Cette étude met en évidence le poids important de la pandémie de COVID-19 sur le bien-être des adolescents. Il est donc nécessaire d'intensifier les stratégies d'intervention sanitaire auprès des adolescents pour réduire le fardeau physique, émotionnel et mental imposé par la pandémie de COVID-19 afin d'optimiser leur qualité de vie. **WAJM 2022; 39(10): 1021–1025.**

Mots clés: Adolescents, École secondaire, COV ID-19, Qualité de vie liée à la santé (QVLS), Jos.

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Abbreviations: COVID-19, Coronavirus Disease 2019; **HRQoL,** Health-Related Quality of Life.

INTRODUCTION

The Coronavirus disease 2019 (COVID-19) has caused millions of mortalities globally. Since the COVID-19 disease was declared a pandemic on 11 March 2020 by the World Health Organization (WHO), one of the major concerns is its impact on the mental health and health-related quality of life (HRQoL) of the general populace.[1,2] Although the fatality of COVID-19 disease among adolescents is low, it is highly transmissible and most adolescents who contact the disease only have mild physical symptoms or are asymptomatic and its impact on their mental health is not adequately known.[1,3–5] According to the WHO, adolescents are people between the ages 10 and 19 years.[6] Adolescents make up about 16% of the world's population.[3] Adolescence is a vulnerable period of transition from childhood to adulthood that is characterized by several biological changes, psychosocial changes, a sense of identity, social and peer group development and interaction.[1] Adolescents are faced with biopsychosocial challenges heightened by the pandemic's restrictions, which may consequently impact their HRQoL.[1,7–9] The HRQoL is a multi-dimensional notion that encompasses the physical, emotional, mental, and social wellbeing of an individual.[10]

Generally, in the event of a natural disaster or a pandemic, the focus of attention of health professionals and associated stakeholders will be on the people's physical health and the war against the offending pathogen, resulting in an underestimated or ignored mental health of the populace. Some studies have reported that the fear of being infected by a potentially fatal, rapidly spreading pathogen, whose nature and course are barely known, will adversely affect the psychosocial wellbeing of several people.[2] In addition, the psychosocial impact directly related to COVID-19 may be heightened by the measures put in place to control the pandemic, such as physical distancing, modifications in schools and work places, and the quarantine period.

The severity and rapid spread of COVID-19 globally, the many uncertainties about its control, and the unpredictability of its duration and consequences have been stated as risk factors for the development of several psychosocial issues among the general population, adolescents inclusive.[2] Therefore, measures to reduce the biopsychosocial implications of the pandemic should be intensified particularly among adolescents who are in a transition phase, and cannot be over-emphasized because the psychological consequences can be more prevalent and lasting than the COVID-19 infection itself.

The COVID-19 pandemic has unprecedentedly affected the lives of people globally including adolescents, although the prevalence and fatality rates among adolescents is low (0.8% - 3.0%).[1,11] A systematic review had reported a global prevalence of mental health conditions among adolescents as 10–20% before the COVID-19 pandemic.[12-14] This prevalence rate may be increased by the susceptibility of adolescents during the pandemic. Since the pandemic began, studies have reported higher levels of anxiety and depressive symptoms, and worsening psychological well-being, behavioral health, and suicide among adolescents compared to before the pandemic.[1,8,12,14–20] This pandemic has remarkably impacted the world and may have a long term negative psychosocial effect on adolescents.[21–23] There is a paucity of literature on the burden COVID-19 pandemic has on the HRQoL of adolescents. This study was therefore aimed to determine the burden COVID-19 pandemic has imposed on the HRQoL of adolescents.

MATERIALS AND METHODS

The study site, Jos North LGA is a cosmopolitan city with a total of 232 secondary schools, comprising of 23 public and 209 private secondary schools.

This was a cross-sectional descriptive study. The sample size was calculated using the Kish's formula, $n = Z^2 p (1-p) / d^2$. Where n is the minimum sample size, Z = 1.96 at a confidence level of 95% with a 5% margin of error, p = 40.2%, the prevalence of low HRQoL among adolescents from a study done in Germany,[1] and d = degree of accuracy desired that is set at 0.05. Therefore, n = 368. Adding 10% of the minimum sample size to correct for non-response gave a value of 405.

A multi-stage sampling technique was used to recruit the study participants. The first stage was the selection of secondary schools using a simple random sampling in the ratio of public to private schools. The second stage involved a systematic sampling to select the study participants in each selected secondary school. The list of secondary school students from each selected school was taken as the sample frame. The sampling interval (SI) was equal to N/n where N was the sampling frame and n was the number of participants to be recruited from the school. A number between one and the SI was randomly selected. This was the starting point and the student on the list at this point was the first participant. The second participant was the SI added to the first number. The third was the SI added to the second number. This process was continued until the number to be recruited from a school was reached.

Data was collected using a pre-tested, self-administered questionnaire containing the participants' socio-demographic characteristics and their parents' socio-economic data with the parents' occupational groups in a scale of 1 to 5, interpreted as 1& 2 being the upper social class, 3 as the middle social class, and 4 & 5 as the lower social class, using the Olusanya's scoring system for social class.[24] The questionnaire also contained questions on being burdened by the COVID-19 pandemic and the KIDSCREEN-10 tool for assessing the HRQoL of adolescents.[25]

The data was analyzed using the IBM SPSS version 24.0 and the results were presented in tables. The participants ages were grouped into 3 using the early, mid, and late adolescence. Their HRQoL was assessed by calculating the total scores for each participant from the KIDSCREEN-10 tool. The KIDSCREEN-10 tool had 10 items of 5 scores each making the attainable minimum score of 10 and a maximum score of 50 for each respondent. The mean score for all the

participants was calculated and found to be 24.2, therefore, participants with scores below the mean (a score of 24.2) were classified as having a low HRQoL while scores above the mean was termed high or normal HRQoL. Chi-square test was used to test for any statistical significance at the value of $p < 0.05$. Ethical clearance was obtained from the Health Research Ethics Committee of Bingham University Teaching Hospital, Jos. Permission to conduct the study was obtained from the principals of the selected schools. The study participants gave written informed consent.

RESULTS

A total of 405 adolescents participated in the study with a mean age of 14.6 ± 2.06 years. This consisted of 214 (52.8%) girls and 191 (47.2%) boys. The socio-demographic characteristics of the study participants are shown in Table 1. More than half (53.3%) of the participants reported being burdened by the COVID-19 pandemic. The distribution of the participants' responses to questions about the burden of COVID-19 pandemic is shown in Table 2. The assessment from the KIDSCREEN-10 tool showed that 185 (45.7%) of the participants experienced a low HRQoL. Table 3 shows the association between the adolescents' HRQoL and being burdened by the COVID-19 pandemic, which was significant ($\chi^2 = 7.108$, $p = 0.01$). Table 4 shows the association between the participants' sociodemographic characteristics and their HRQoL. The stratification by gender showed that a higher proportion of girls had low HRQoL. Older adolescents were significantly affected with a low HRQoL than their younger counterparts ($\chi^2 = 5.112$, $p = 0.02$) as reported in Table 4. A higher proportion of adolescents whose parents were in the lower socioeconomic class reported low HRQoL than the others in the middle and higher classes. Also, adolescents from extended and single parent families had higher proportions with a low HRQoL than those from monogamous and polygamous families.

DISCUSSION

This study reported that more than half (53.3%) of the adolescents felt

Table 1: Distribution of the Sociodemographic Data of the Study Participants

Characteristics	Number of Participants (n = 405)	Percentage (%)
Age groups (years)		
10 – 13	123	30.4
14 – 16	209	51.6
17 – 19	73	18.0
Gender		
Female	214	52.8
Male	191	47.2
Class in School		
JSS	185	45.7
SSS	220	54.3
Religion		
Christianity	361	89.1
Islam	44	10.9
Family Setting		
Monogamous	315	77.8
Single Parent	29	7.2
Polygamous	12	3.0
Extended Family	49	12.1
Socioeconomic Status		
Higher	100	24.7
Middle	193	47.7
Lower	112	27.6

JSS, Junior Secondary School; SSS, Senior Secondary School.

Table 2: Distribution of Responses on the Burden of COVID-19 Pandemic

Questions	Frequency of Responses (Percentages)		
	Yes	No	Don't know
Has the pandemic posed as a burden to you?	216 (53.3)	189 (46.7)	0 (0)
Has the pandemic made schooling difficult?	329 (81.2)	57 (14.1)	19 (4.7)
Has the pandemic badly affected your relationship with friends?	195 (48.1)	187 (46.2)	23 (5.7)
Has the pandemic badly affected your relationship with family members?	100 (24.7)	285 (70.4)	20 (4.9)

Table 3: Association between being burdened by the COVID-19 pandemic and the Health Related Quality of Life (HRQoL) of the Participants

Variables	HRQoL		Total (%)	Chi-square, χ^2	p-value
	Low	High			
Being burdened by COVID-19					
Yes	112	104	216 (53.3)	7.108	0.01*
No	73	116	189 (46.7)		
Total	**185 (45.7)**	**220 (54.3)**	**405 (100)**		

*HRQoL, Health Related Quality of Life; * =, significant p-value.*

Table 4: Association between the Participants' Socio-demographic Characteristics and their Health Related Quality of Life (HRQoL)

Variables	HRQoL		Chi-square, χ^2	p-value
	High	Low		
Age groups (years)				
10 – 13	77	46	5.112	0.02*
14 – 16	104	105		
17 – 19	39	34		
Gender				
Female	110	104	1.558	0.21
Male	110	81		
Class in School				
JSS	100	85	0.011	0.92
SSS	120	100		
Religion				
Christianity	193	168	0.987	0.32
Islam	27	17		
Family Setting				
Monogamous	173	142	0.417	0.94
Single parent	15	14		
Polygamous	7	5		
Extended family	25	24		
Socioeconomic Status				
Higher	57	43	0.258	0.61
Middle	104	89		
Lower	59	53		

*HRQoL, Health Related Quality of Life; JSS, Junior Secondary School; SSS, Senior Secondary School; *, significant p-value.*

burdened by the COVID-19 pandemic due to its impact on their wellbeing and more than two-fifth (45.7%) of them had a low HRQoL during this pandemic. Also, there was a significant association (p = 0.01) between the adolescents' HRQoL and being burdened by the COVID-19 pandemic. Therefore, this study has shown that the adolescents who felt burdened by the COVID-19 pandemic were more likely to have a low HRQoL than their counterparts. The findings from this study are similar to the findings of a study done in Germany that reported a 40.2% rate of adolescents with low HRQoL.[1] This increased prevalence of a low HRQoL among adolescents during the pandemic may be as a result of the restrictions imposed to curtail the spread of the disease.[12] Generally, adolescents enjoy engaging in activities that involves physical mobility, and they find activities such as sporting and extra-curricular events to be gratifying.[6,7] The COVID-19 pandemic had further decreased the opportunities available for adolescents to participate in these pleasurable activities. These opportunities had been decreasing over the years as many schools and institutions have cut down on most non-academic activities due to several factors including budget concerns.[7]

From this study also, there was a significant association between age and HRQoL (p = 0.02) where older adolescents had a lower HRQoL than the younger ones. This significance may be due to the increased need for independence and a stronger sense of individuality and identity found in older adolescents.[6] The older adolescents tend to form stable friendships, romantic relationships, and possess the ability to identify personal values better than their younger counterparts. Though not statistically significant, female adolescents, adolescents with parents of middle/lower socioeconomic status, and adolescents from extended and single-parent families had higher proportions of low HRQoL than their counterparts. These were similar to the findings of the German study with adolescents of low socioeconomic class, those from families with low educational levels, and limited financial resources having a higher risk of being negatively affected by the COVID-19 pandemic.[1]

Although this study did not directly assess the presence of anxiety and depressive symptoms among the adolescents, the HRQoL tool is also an indication of an individual's physical, emotional, and mental wellbeing.[10] It can therefore be interpreted that there has been a possible increase in mental health disorders among adolescents during the COVID-19 pandemic as against the period before the pandemic (10 – 20%).[14] A 2020 study in China, the country where the COVID-19 disease started, reported that 31 – 44% of adolescents had anxiety and depressive symptoms.[17] The finding from China is similar to this study. Studies from Europe, USA, and Asia have also reported an increase in anxiety and depressive symptoms among adolescents during this pandemic more than before.[14–20]

The psychosocial toll of the impact of COVID-19 pandemic poses a huge challenge as adolescents may lack the developmental and psychosocial capabilities of coping and resilience as seen in adults. This may result in a poor physical, emotional, mental, and social health of the adolescent. Following the negative outcomes that are associated with a poor mental health of an adolescent, such as behavioral problems, emotional distress, and suicide among others, it is of utmost importance that measures are put in place to help adolescents develop and thrive in this challenging period of COVID-19 pandemic using all available resources. The provision of accurate and adequate information on COVID-19 from sources that are credible will reduce the likelihood of a negative impact on them.[26] Mental health promotion and education should be made available to the adolescent population to meet their needs in the context of adolescent-friendly services.

All stakeholders, including the adolescents, parents/guardians, health and education professionals, community representatives, and policy makers

should work collaboratively in advocating for a targeted mental health care for adolescents. Resources should be made available for improved preventive and curative measures to curtail the mental health impact of COVID-19 pandemic on adolescents. Further studies to assess the long-term impact of COVID-19 pandemic on the mental health of adolescents and studies aimed at identifying effective preventive/ intervention strategies are recommended. Although this study was a cross-sectional survey, the findings can assist in developing focused longitudinal studies that can determine the temporal course of events. Findings from this study may have been affected by a recruitment bias as only adolescents in schools were selected to participate, their out-of-school counterparts were left out of this study. This may influence the generalisation of the findings.

CONCLUSION

This study highlights the significant burden the COVID-19 pandemic has on the wellbeing of adolescents. A significant number of adolescents who were burdened by the pandemic had a low HRQoL and older adolescents were more at risk of a low HRQoL. It is crucial that adolescents receive the appropriate physical and mental health care that they may require during this pandemic to foster their growth and development. Therefore, there is the need to intensify health promotion and intervention strategies aimed at reducing the burden imposed by the COVID-19 pandemic in order to optimize the adolescents' quality of life.

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