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Perceived impact of COVID−19 lockdown on access to healthcare services, food affordability and family income among married patients of a resource−limited primary care setting

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ABSTRACT

Objective: To examine the perceived impact of COVID-19 lockdown on access to healthcare services, food affordability, and family income during the first phase of the pandemic among married people of a resource-limited primary care setting in Kano, Nigeria.

Methods: This survey involved 432 married respondents systematically selected from attendees of a primary care clinic in Kano, Nigeria, using a structured questionnaire.

Results: Over half (53.5%) of respondents or their family members fell ill during the lockdown; 67.1% felt it difficult to access hospital treatment, while 32.9% sick patients resorted to self-medication. Over half (57.2%) could afford food as they used to, 75.0% reported that food items were costly, while 35.9% received government assistance. Only 29.9% had employment, of which 49.6% received a salary, while 29.5% had their salaries reduced. Educational level was significantly associated with ease of accessing healthcare services (χ^2 =8.528, P=0.014). Age (χ^2=12.209, P<0.001), family type (χ^2 =12.943, P<0.001), home location in Kano state (χ^2= 15.397, P<0.001) and family headcount (χ^2=3.968, P=0.044) were significantly associated with perceived food affordability.

Conclusions: This study demonstrated the negative impact of the lockdown on healthcare access, food affordability, and family income among respondents' families. This suggests the need for more investments in promoting and scaling up telemedicine services as platforms for accessing healthcare, which could be utilized in similar future events. More studies will be needed to ascertain the complete picture of the implementation of social assistance in the study area to enhance planning and distribution of future government social assistance.

KEYWORDS: COVID-19; Family income; Food security; Healthcare access; Lockdown; Primary care

1. Introduction

COVID-19, caused by SARS-CoV-2, was declared a pandemic on 11 March 2020[1,2]. The rapid spread of the disease and its associated morbidity and mortality resulted in the use of handwashing, social distancing and the lockdown of towns, cities, states and countries, which formed the primary global response to contain transmission of the disease[3−5]. Lockdown measures were deployed because standard control measures for infectious diseases involving active case detection, contact tracing, selective isolation, and quarantine became insufficient to control virus transmission, given the comparatively high infection rate[5].

Significance

The COVID-19 pandemic has had a profound impact on economies, societies, and healthcare systems worldwide. This study captured the lockdown experiences of primary care patients' families in a resource-limited setting. It showed limited healthcare access, resulting in self-medication and unorthodox treatments, unaffordable food items from reduced family income and costs, and poorly received government social assistance. Effective deployment of telemedicine services and planning of social assistance using information like home location, household size and family type should be advocated.

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Moreover, the COVID-19 pandemic lockdown period will be remembered as an unforgettable time in the history of humanity. It has been described as a difficult period of uncertainties for many, but it also allowed many to slow down the pace of life and connect with their families[6]. A WHO report in 2020 showed significant disruption of healthcare services in all countries but was more in the lower- than in the higher-income countries[7]. In addition, Haider *et al.*, in their review, described some positive impacts of the lockdown in China and European countries but also reported its adverse effects on health as the COVID-19 pandemic affected health system functioning and caused economic and social disruption in sub-Saharan countries[5].

Furthermore, the first case of the disease in Nigeria was recorded on 27 February 2020 in an Italian who arrived in Nigeria through the Murtala Muhammad International Airport, Lagos, from Milan. By 11 April 2020, Kano state recorded its first case. After that, the State government imposed a total lockdown on 16 April 2020. However, the lockdown went from a complete restriction of movements (total lockdown) for several weeks to partial and was finally lifted on 6 July 2020. A study among 307 primary health centres selected from the six geopolitical zones of Nigeria using mobile phones to obtain information from the head nurses or midwives from the designated centres before, during and after the lockdown showed a disruption of sexual and reproductive health services during the lockdown[8]. Notably, from the patient's perspective, there is still a paucity of published studies in Nigeria on how this lockdown affected access to health services, food security and family income, going by patients' recount of their family experiences during the lockdown several months after the lockdown. The lack of studies in Kano state could partly be due to several barriers to research activities during the lockdown[9]. This study was, therefore, an attempt to fill this gap. Hence, from the patient's perspective, we assessed the impact of the lockdown on access to healthcare services, food affordability, and family income during the first wave of the COVID-19 lockdown in Kano, Nigeria.

2. Materials and methods

2.1. Study design, setting and procedure

We analysed data from a broader survey on the COVID-19 lockdown family experiences of 432 primary care patients systematically selected from attendees of the primary care clinic of Aminu Kano Teaching Hospital in Kano, Northwest Nigeria. The study was carried out over a twelve-week period (September to November 2021). A minimum sample size of 427 was calculated using the Epi info version 7 software by applying the following variables: we assumed that 50% of married patients were negatively impacted by the lockdown, given the absence of similar studies, 95% confidence interval, 5% margin of error, a cluster of 1, design effect of 1, sample frame of 9000, and additional 10% for possible missing data and non-responses[10]. However, this was rounded off to 450. Eighteen questionnaires (10 could not be retrieved and 8 with missing data) were excluded from the analysis, representing a 96.0% response rate. The full methodology has been published elsewhere in the study on the prevalence and sociodemographic predictors of family functionality, marital satisfaction, and intimate partner violence in this population[10].

2.2. Data collection

Data collected from participants included participants' perceptions about access to healthcare services, food affordability and family income during the lockdown. The participants' ease of accessing healthcare services during the lockdown was assessed using the question: "How easy was it to get treatment from the hospital during the lockdown?" The responses were "Easy", "Difficult", or "Unchanged". Food affordability was assessed using the question: "Were you able to afford food during the lockdown like you used to? The response was "Yes" or "No". In assessing the impact on their family income, we used two questions: (1) Were you gainfully employed during the lockdown? The responses were "Yes" and "No"; (2) "If you had employment, were you receiving a salary during the lockdown?" The responses were: "No", "Yes" or "My salary was reduced".

2.3. Ethical approval

Ethical approval was obtained from the Research Ethics Committee of Aminu Kano Teaching Hospital (NREC/28/01/2020/AKTH/EC/3128). In addition, written informed consent was obtained from each participant.

2.4. Data analysis

Data were entered and analysed using Epi Info Version 7.2.4 (Center for Disease Control, Atlanta, GA, USA). Frequency tables were used to summarise the categorical variables, while the *Chi*-square test or Fisher's exact test was used to determine the association between categorical variables, as appropriate.

3. Results

3.1. Medical characteristics of respondents

Table 1 shows the respondents' medical characteristics and perceived access to healthcare services during the lockdown. Most respondents (292, 67.6%) reported having no chronic disease; however, 22.2% had hypertension, and 10.9% had diabetes. A majority (339, 78.5%) did not have health insurance. More than half (231, 53.5%) reported that they or their family member was sick during the lockdown. Sadly, a majority (290, 67.1%) felt that getting treatment from a hospital was difficult. Although over half (122, 52.8%) got treatment from a hospital, about a third of participants (76, 32.9%) resorted to self-medication, while 13.9% obtained treatment from a local chemist/pharmacy shop.

Table 1. Perceived medical characteristics and access to health care during the lockdown among respondents.

Questions	*n*=432
Which of these chronic conditions do you have? *	
Hypertension	96(22.2)
Diabetes	47(10.9)
Sickle cell disease	14(3.2)
Asthma	4(0.9)
None	292(67.6)
Do you have health insurance?	
No	339(78.5)
Yes	93(21.5)
Did you or your family member get sick during the lockdown?	
No	201(46.5)
Yes	231(53.5)
How easy was it to get treatment from the hospital during the lockdown?	
Easy	35(8.1)
Difficult	290(67.1)
Unchanged	107(24.8)
How did you or family member get treatment during the lockdown? (n=231)	
Self-medication	76(32.9)
From the hospital	122(52.8)
From chemist/pharmacy	32(13.9)
Traditional healer**	1(0.4)

Data are presented as *n* (%). *Some respondents had >1 disease; **Persons that provides care from traditional herbs/concoctions.

3.2. Perception of respondents on their families' food affordability

Table 2 shows the respondents' perception regarding their families' food affordability during the lockdown. Only 57.2% reported being able to afford food during this period. 75.0% of the respondents said that the cost of food items was high. Interestingly, only 35.9% of respondents reported receiving any form of palliative (social assistance) during the lockdown. However, 40.7% said they survived the period by self-support, while 29.6% got help from other relatives.

Table 2. Respondents' perception of food security during the lockdown.

Questions	*n*=432
Were you able to afford food during the lockdown like you use to?	
No	185 (42.8)
Yes	247 (57.2)
What happened to the cost of food products that you buy during the lockdown?	
High cost	324 (75.0)
Low cost	53 (12.3)
Unchanged	55 (12.7)
Did you get any palliative during the COVID-19 lockdown?	
No	277 (64.1)
Yes	155 (35.9)
What was your main source of support for sustaining your family during the lockdown?	
From relations	128 (29.6)
Government	55 (12.7)
Philanthropists	59 (13.7)
Self-support	176 (40.7)
NGOs	14 (3.3)

Data are presented as *n* (%).

3.3. Perception of respondents on their families' family income

Table 3 shows the respondents' perceptions of family income during the lockdown. Only 29.9% of respondents were gainfully employed during the lockdown. Of these, only 49.6% received salaries, while 29.5% had their salaries reduced, while 20.9% had their salaries stopped.

Table 3. Respondents' perception of the impact of the lockdown on their family income.

Questions	*n* (%)
Were you gainfully employed during the lockdown?(*n*=432)	
No	303 (70.1)
Yes	129 (29.9)
If you had employment, were you receiving your monthly salary during the lockdown? (*n*=129)	
No	27 (20.9)
Yes	64 (49.6)
My salary was reduced	38 (29.5)

3.4. Comparing sociodemographic variables and ease of accessing healthcare services

Table 4 compares sociodemographic variables and perceived ease of accessing healthcare services among respondents. Among the sociodemographic variables studied, only educational level was significantly associated with ease of accessing health services. More

Table 4. Association between sociodemographic variables and perceived ease of accessing health services during the lockdown.

Variables	*n*	Access to health services			χ^2	*P*
		Easy (*n*=35)	Difficult (*n*=290)	Unchanged (*n*=107)		
Type of participants						
Patients	376	34 (97.1)	248 (85.5)	94 (87.9)	-	0.148[f]
Caregiver	56	1 (2.9)	42 (14.5)	13 (12.1)	-	-
Age (years)						
<50	393	32 (91.4)	262 (90.3)	99 (92.5)	-	0.794[f]
≥50	39	3 (8.6)	28 (9.7)	8 (7.5)	-	-
Sex						
Male	139	15 (42.9)	83 (28.6)	41 (38.3)	5.359	0.069
Female	293	20 (57.1)	207 (71.4)	66 (61.7)	-	-
Religion						
Islam	374	29 (82.9)	253 (87.2)	92 (86.0)	0.560	0.756
Christianity	58	6 (17.1)	37 (12.8)	15 (14.0)	-	-
Tribe						
Hausa-Fulani	275	24 (68.6)	244 (84.1)	88 (82.2)	5.223	0.073
Others	157	11 (31.4)	46 (15.9)	19 (17.8)	-	-
Family type						
Monogamous	216	19 (54.3)	141 (48.6)	56 (52.3)	0.712	0.701
Polygamous	216	16 (45.7)	149 (51.4)	51 (47.7)	-	-
Educational level						
Low [a]	99	9 (25.7)	55 (19.0)	35 (32.7)	8.528	0.014[*]
High [b]	333	26 (74.3)	235 (81.0)	72 (67.3)	-	-
Employment status during lockdown						
Employed	129	14 (40.0)	92 (31.7)	23 (21.5)	5.774	0.056
Unemployed	303	21 (60.0)	198 (68.3)	84 (78.5)	-	-
Residential location during lockdown						
Within Kano urban area	397	31 (88.6)	266 (91.7)	100 (93.5)	-	0.644[f]
Outside Kano urban area	35	4 (11.4)	24 (8.3)	7 (6.5)	-	-
Family headcount						
≤6	234	18 (51.4)	154 (53.1)	62 (57.9)	0.853	0.653
>6	198	17 (48.6)	136 (46.9)	45 (42.1)	-	-

Data are presented as *n* (%). χ^2: *Chi*-square test; [f] Fisher exact test; [*]Significant; [a] No formal education and primary education; [b] Secondary and tertiary education.

respondents with higher educational levels (74.3%) reported having easy access to health services than those with lower educational levels (25.7%) (χ^2=8.528, *P*=0.014).

3.5. Comparing sociodemographic variables and perceived food affordability

Table 5 compares respondents' sociodemographic variables and perceived food affordability. Age (χ^2=12.209, *P*<0.001), family type (χ^2=12.943, *P*<0.001), living within or outside the Kano metropolis (χ^2=15.397, *P*<0.001) and family headcount (χ^2=3.968, *P*=0.044) were significantly associated with perceived affordability of food during the lockdown.

4. Discussion

This hospital-based study examined the perception of a cross-section of married patients and caregivers on the impact of the lockdown on family access to healthcare services, food affordability and family income.

Reports globally show decreased utilisation of or access to routine healthcare services in settings with severe restrictive COVID-19 pandemic lockdowns[11–13]. The factors that influenced the reduced utilisation of health services included the proactive reduction of services by healthcare facilities to prepare for the upsurge of COVID-19 cases[14], fear of being infected by the virus in the hospital[15,16], stigma of receiving a diagnosis of COVID-19[17], misinterpreting government recommendations of going to the hospital[18], playing down the risk of health complications and the perceived need for medical attention[19], and among others. However, telemedicine was available and widely utilised in many developed countries, which decreased patients' interface with the healthcare facility[14]. Our study showed that about two-thirds of the respondents (67.1%) felt it was difficult to get hospital treatment. This finding, though consistent with other studies[11–13], could be due to several of the factors mentioned above. In addition, from our experience, transportation difficulties contributed to the perceived difficulty in accessing care in our setting, especially for those who did not have private vehicles and the absence of public ambulance services. Second, many public and private primary care clinics in the study area were closed for various reasons, such as the rising number of COVID-19-exposed health workers who were mandatorily

Table 5. Association between sociodemographic variables and perceived food affordability during the COVID-19 lockdown.

Variables	*n*	Could afford food		χ^2	*P*
		Yes (*n*=247)	No (*n*=185)		
Type of respondents					
Patient	376	210 (85.0)	166 (89.7)	2.080	0.149
Caregiver	56	37 (13.0)	19 (10.3)	-	-
Age (years)					
<50	393	235 (95.1)	158 (85.4)	12.209	<0.001*
≥50	39	12 (4.9)	27 (14.6)	-	-
Gender					
Male	139	85 (34.4)	54 (29.2)	1.323	0.250
Female	293	162 (65.6)	131 (70.8)	-	-
Religion					
Islam	374	213 (86.2)	161 (87.0)	0.057	0.811
Christianity	58	34 (13.8)	24 (13.0)	-	-
Tribe					
Hausa / Fulani	275	204 (82.6)	152 (82.2)	0.013	0.908
Others	157	43 (17.4)	33 (17.8)	-	-
Family setting					
Monogamous	216	142 (57.5)	74 (40.0)	12.943	<0.001*
Polygamous	216	105 (42.5)	111 (60.0)	-	-
Educational level					
Low [a]	99	51 (20.7)	48 (26.0)	1.681	0.193
High [b]	333	196 (79.3)	137 (74.0)	-	-
Employment status during lockdown					
Employed	129	69 (27.9)	60 (32.4)	1.021	0.312
Unemployed	303	178 (72.1)	125 (67.6)	-	-
Residential location during lockdown					
Within Kano urban area	397	238 (96.4)	159 (86.0)	15.397	<0.001*
Outside Kano urban area	35	9 (3.6)	26 (14.0)	-	-
Family headcount					
≤6	234	144 (58.3)	90 (48.7)	3.968	0.044*
>6	198	103 (41.7)	95 (51.3)	-	-

Data are presented as *n* (%). χ^2: *Chi*-square; *Significant; [a] No formal and primary education; [b] Secondary and tertiary education.

quarantined or isolated and the deaths of medical practitioners in some private solo practice settings[20]. Finally, there was a lack of alternative platforms for accessing health care services, such as telemedicine. Interestingly, our study site introduced telephone consultations towards the end of the lockdown, but poor patronage reduced its effectiveness, probably from poor awareness and lack of confidence in it.

Unsurprisingly, a third of respondents who were ill during the lockdown resorted to self-medication, while fewer respondents obtained treatment from local medicine shop owners or used traditional herbs/medicines with doubtful efficacy. This finding reveals the inconvenience in many resource-limited settings and implies that many ill persons in the study area could have suffered unreported morbidities and even mortalities during the lockdown.

Furthermore, in the background of a predominantly higher proportion of respondents with higher education, we found a significant association between respondents' educational level and the ease of accessing health services during the lockdown. More respondents with higher education reported accessing health services more easily than those with lower education. This suggests that those with higher educational levels may have been more informed about how to obtain care than those with lower educational levels. If this finding portrays the complete picture in the study area, there will be a need to scale up educational awareness campaigns on accessing healthcare services, including telemedicine services, during similar situations in the future.

Additionally, we found that less than a third of respondents (29.9%) had employment during the lockdown. Of these, only about half (49.6%) received their full salaries, whereas 29.5% had their salaries reduced. These findings are consistent with the World Bank report on the impact of COVID-19 on households in 35 countries (Nigeria included), which indicated that at the onset of the pandemic, at least two-thirds of families with children suffered income loss. Similarly, 42.8% of the respondents in our study reported that they could not afford food, probably due to the high cost of food items which three-quarters of respondents reported. These findings are also consistent with the World Bank report, which indicated that households with children were more likely to suffer food insecurity and would therefore require social assistance[21].

Unfortunately, the majority (64.1%) of respondents reported that their families did not receive government assistance (popularly known as palliative) despite the media being awash with the

announcement of government and non-governmental organisations' donations of palliatives. This finding will require a community-based study to ascertain the complete picture. However, the highest proportion of respondents (40.7%) said they survived through self-support, while 29,6% received help from relatives. Again, these findings were consistent with the World Bank report[21]. These findings imply that there is a need for strategic planning for the distribution of government and non-governmental palliatives towards mitigating the sufferings of citizens during similar future occurrences if a community-based investigation replicates these findings.

Furthermore, significant associations were observed between age, home location in Kano state, family headcount, family type and perceived food affordability during the lockdown. More respondents could not afford food items among those who were < 50 years old, living within the urban area, with > 6 people per household, and from polygamous family settings than among those who were ≥ 50 years, living outside the metropolis, with ≤ 6 people per household and from monogamous family settings, respectively. Although the World Bank report did not compare age, family type, and location, it indicated that families with many children were more likely to experience food insecurity than families without children. It showed that in 24.0% of households with many children, an adult member went a whole day without food due to a lack of money and other resources, compared to 14.0% of households without children[21]. It also demonstrated that 26.0% of households with children received social assistance compared to 12.0% without children. Furthermore, we do not know the complete link between younger respondents (age <50 years) and their perceived inability to afford food; however, we suspect that this age group may have younger families with younger children, thus have younger dependants (children), with more pressure to purchase nutrition than older families and deservedly feeling less able to afford food. Similarly, the association between living within the urban area and the inability to afford food items could be due to the strict implementation of movement restrictions within the urban area, which would have affected the restocking of shops and markets, resulting in the high cost of food from demand and supply forces. Although we did not measure the number of children in each household, households with more than six members and those from polygamous settings were more likely to have more children and thus more likely to suffer food insecurity based on the world bank report[21]. These findings suggest the need to consider these sociodemographic variables in planning any social assistance to families in similar future events. In addition, the government may need to improve the living standards of citizens since studies have shown that low and middle-income families had the worse impact of the COVID-19 pandemic[22].

This study had some limitations. First, we could not eliminate recall bias since the study was conducted after the lockdown. Second, the respondents were patients or their caregivers, so their responses may differ from those of the general population. However, the study site is a foremost health facility used by a large volume of patients from different strata of the residents of Kano state, and findings could provide essential baseline data for future community-based studies.

5. Conclusions

This study demonstrated the negative impact of the lockdown on healthcare access, food affordability, and family income among respondents' families. These findings suggest the need for more investment in the healthcare sector and the need to scale up telemedicine services. However, more studies will be needed to ascertain the complete picture of the implementation of social assistance during the lockdown to enhance planning and distribution of future government social assistance (palliatives).

Conflict of interest statement

The authors claim there is no conflict of interest.

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Data availability statement

The data supporting the findings of this study are available from the corresponding author upon request.

Authors' contributions

Michael GC was involved in the conception, design, data collection, analysis and interpretation, manuscript drafting, revision, and approval for publication; he was also the manuscript's guarantor. Suleiman AK was involved in the design, data interpretation, manuscript drafting, revision and approval. Grema BA was involved in data interpretation, manuscript drafting, revision, and approval. Umar ZA was involved in data interpretation, manuscript drafting, revision and approval.

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