Wellbeing during the first wave of the COVID-19 pandemic among adults in Nigeria: Associations with psychosocial and pandemic-related factors

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Abstract

Background: Psychosocial factors including stress are determinants of wellbeing. However, there is a shortage of information about how these relationships were impacted by the COVID-19 pandemic among adults in Nigeria.

Objectives: To determine the associations between wellbeing, and impact of the COVID-19 pandemic, psychological distress (anxiety and depression), and perceived social support among adults in Nigeria during the first wave of the pandemic.

Methods: Wellbeing (assessed using the WHO Wellbeing Index) was the outcome variable while the explanatory variables included anxiety and depressive symptoms (assessed using the Hospital Anxiety and Depression Scale), perceived social support (assessed using the Multidimensional Scale of Perceived Social Support) and perceived impact of the pandemic (assessed using perceived disruptions of life-domains). Univariate and multivariate logistic regression models were used to assess the associations between the outcome and explanatory variables. The models were adjusted for sociodemographic profile (highest level of education, employment status and payment status).

Results: Low self-perceived impact of the pandemic was significantly associated with higher odds of high wellbeing (AOR: 2.59; 95% CI: 1.69-3.95; $p < 0.001$). Other factors associated with significantly higher odds of high wellbeing were high perceived social support (AOR: 2.40; 95% CI: 1.78-3.22; $p < 0.001$) and having tertiary education (AOR: 1.51; 95% CI: 1.07-2.13; $p = 0.020$). In contrast, experiencing anxiety symptoms were significantly associated with lower odds of high wellbeing (AOR: 0.24; 95% CI: 0.14-0.41; $p < 0.001$).

Conclusions: Measures for enhancing the wellbeing of adults resident in Nigeria may include strategies to ameliorate the impact of the pandemic, strengthening social support systems, and promoting optimal physical and mental health.

Introduction

Well-being is a state of equilibrium that can be affected by life events or challenges [1]. From the perspectives of a dynamic framework, wellbeing is a measure of life satisfaction, and it consists of cognitive, affective and contextual factors[2]. The cognitive factors refer to how individuals evaluate their lives, while affective factors are the feelings provoked by the individuals' experiences. The contextual factors include the absolute income of an individual and his/her relative income (in comparison with other individuals or situations) [3]. The ongoing Corona Virus Disease 2019 (COVID-19) pandemic poses a challenge to the wellbeing of many individuals. The negative impact of the COVID-19 pandemic on the Gross Domestic Product (GDP) of countries – estimated to have dropped by 2–3% globally and worse for poor resource countries[4], may increase the number of people living in poverty and the insecurity of food, lives and properties (which are associated with poorer wellbeing) [5, 6].

The wellbeing of individuals is determined by physical and social factors such as state of health, employment status, and social relationships [7]. Individuals in precarious employment situations with associated unstable income are at a higher risk of poorer wellbeing than others in more stable situations [8]. While monthly income is positively associated with wellbeing [9], changes in income level may not necessarily be related to proportionate changes in wellbeing [10]. Also, one's wellbeing is associated with one's mental health (anxiety and depression) status [11, 12]. Education is a significant positive contributor to adult wellbeing [13]. However, low academic achievers do not necessarily report low wellbeing, and high-achieving persons do not necessarily register high well-being [14] due to the mediating role of individual expectations [15].

The pandemic and measures instituted to control the pandemic (lockdowns, isolation and quarantine) can affect individuals' employment status, income and mental health, with a significant impact on job security, work, family and social relationships with an associated decline in life satisfaction [12–15]. In Nigeria, 3–4 out of every ten persons had features of depression or post-traumatic stress disorder [16]. Globally, the prevalence of COVID-19-associated depression and anxiety ranged between 16%–28% [17], anxiety symptoms ranged from 6.33–50.9% in adults, while symptoms of depression were between 14.6%–48.3% [18].

Access to social support from friends, family members and others may offer some protection against depression and anxiety in stressful situations [19] as it promotes resilience, helps people cope with stress [20], and it is recourse for dealing with life changes [21]. Being married enhances the perception of wellbeing for both men and women [22] though the quality of support within the marital relationship will affect wellbeing [23]. Access to social support protects from pandemic related anxiety and depression [24] and reduces the impact of the pandemic on psychological wellbeing [25]. The pandemic has reduced individuals' access to social support in Nigeria [26], but little is known about how this may have affected the wellbeing of Nigerians. This study, therefore, aimed to determine the associations between the wellbeing of adults resident in Nigeria during the first wave of the COVID-19 pandemic, and psychological distress (anxiety and depression); employment, income and marital status; perceived social support and self-perceived impact of the COVID-19 pandemic. Our current study seeks to explore the conceptual framework of the integrative model of wellbeing which posits that the overall subjective wellbeing of an individual is a product of contextual factors/circumstances, cognitive appraisal of current situation and the affective responses towards the situation [2]. The situation in context is the COVID-19 pandemic, the cognitive factors are the reported self-perceived impact of the pandemic, while the affective factors are the experience of psychological distress reported by the study participants. We hypothesized that individuals who report experiencing symptoms of psychological distress (anxiety or depression) and who reported poor employment and income status, severe impact of the pandemic and is not married will report lower wellbeing. We also hypothesize that individuals who have tertiary education will report higher wellbeing.

Materials And Methods

The study was a cross-sectional study. Data was collected using an online survey opened on the 21st of June 2020 and closed on the 6th of August 2020. Study participants were recruited through adverts promoted on social media platforms: "WhatsApp", "Facebook", "Instagram" and "Twitter". Adults (18 years and above) in Nigeria when completing the survey were eligible to participate in the study. The study instrument was in the English language, which is the official language in Nigeria. Hence individuals who did not speak English were excluded from the survey.

The study instrument was presented as a Google form and its link was shared on the social media platforms. The Google form has a participants' information section explaining the aim and objectives of the study, an informed consent page. Participants who consented to study participation then had access to the study's question items. The question asked about the sociodemographic characteristics of respondents, the self-perceived impact of COVID-19 pandemic, mental health symptoms assessment, perceived social support and psychological wellbeing.

Measures

Sociodemographic section:

This section elicited information on age at last birthday (in years), sex at birth, marital status ("single", "married" and "divorced/separated/widowed"), level of highest educational achievement ("no formal education", "primary", "vocational", "secondary", "tertiary" (undergraduate and postgraduate)), employment status ("student", "unemployed", "retired" and "employed") and income status ("no payment", "partial payment", "full payment").

Self-perceived impact of COVID-19 pandemic section:

We assessed the impact of the COVID-19 pandemic on ten life domains: "*family*", "*marriage/intimate relationships*", "*parenting*", "*friendships/social life*", "*work*", "*education*", "*recreation*", "*spirituality*", "*community life*" and "*physical self-care*" by asking participants to rate the impact of the pandemic on these domains using a Likert-like scale with scores ranging from 1 (No disruption) to 7 (Serious disruption). Scores ranged from 10–70, with increasing scores indicating the more severe impact of the pandemic. The Cronbach's alpha of the items that were used to evaluate the impact of the COVID-19 pandemic was 0.91.

Mental health symptoms and psychological wellbeing section:

Hospital Anxiety and Depression Scale

The Hospital Anxiety and Depression Scale (HADS) comprises 14 questions, of which seven assess anxiety symptoms, and the other seven assess depressive symptoms [27]. Each question is rated on a 4-point Likert scale ranging from 0 (No, not at all) to 3 (Yes, definitely). Total scores were derived for anxiety symptoms and depressive symptoms. Higher scores indicated more severe symptoms. The total scores

for each subscale (anxiety or depression) were dichotomised into two categories: “no anxiety/ anxiety”, “no depression/depression” respectively using a cut-off score of 15 [28]. The scale has been validated for use in Nigeria [29]. For this study, the Cronbach’s alpha for the anxiety and the depression subscales present study was 0.81 and 0.64 respectively.

Multidimensional Scale of Perceived Social Support (MSPSS)

Social support was measured using the MSPSS [30]. It consists of twelve questions each rated on a 7-point Likert scale ranging from 1 (Very strongly disagree) to 7 (Very strongly agree). The total scores were derived by summing the scores on each item and used in analyses. The mean score for this sample was 36.76 (17.29). The MSPSS scores were categorised into two, with individuals scoring above the mean classified as having “high perception of social support” and others classified as having “low perception of social support”. The scale had been validated for use in Nigeria [31]. The Cronbach’s alpha for this sample was 0.97.

World Health Organization Five Well-Being Index

Subjective well-being was measured using the World Health Organisation-Five Well-Being Index (WHO-5) [32]. It consists of five questions scored on a 6-point Likert scale with scores ranging from 0 (none of the time) to 5 (All of the time). The positively phrased items include (1) ‘I have felt cheerful and in good spirits’, (2) ‘I have felt calm and relaxed’, (3) ‘I have felt active and vigorous’, (4) ‘I woke up feeling fresh and rested’ and (5) ‘My daily life has been filled with things that interest me’. Each respondent was asked to rate how well each of the 5 statements applied to him or her within the last fourteen days. The total sum was converted to a percentage by multiplying by 4 to obtain an aggregate wellbeing index ranging between 0 and 100 with higher scores indicating better well-being. The wellbeing scores were categorised into two with individuals scoring above the mean classified as having “high wellbeing” and others classified as having “low wellbeing”. The WHO-5 has good psychometric properties [33] It is an outcome measure of interventions and can be used as a screening tool for depression [33]. The Cronbach's alpha for this study population was 0.95.

Statistical Analyses

Analyses were carried out using the IBM-SPSS software version 26. The outcome variable for this study was psychological wellbeing. The explanatory variables were symptoms of depression and anxiety, the self-perceived impact of the COVID-19 pandemic and perceived social support. The confounding variables were age, sex, marital status, level of highest educational achievement, employment status and income status. Categorical variables were described using frequencies and percentages, while continuous variables were described using means and standard deviations. Tests of association between the outcome variable and the explanatory variables and confounders were carried out using Chi-squared tests or student t-tests as appropriate. Multivariate binary logistic regression was used for inferential analysis. The binary logistic regression model included only variables from the bivariate analyses with p -values <0.05 . The estimated coefficients were expressed as adjusted odds ratios (AOR) and their 95% confidence intervals were reported. Statistical significance was set at $p<0.05$.

Ethical Consideration

The ethical approval for the study was obtained from the Research Ethics Committee of the Institute of Public Health, Obafemi Awolowo University Ile-Ife, Osun State Nigeria. The approval number was IPH/OAU/12/1560.

Results

Table 1 highlights the sociodemographic characteristics of the study participants disaggregation by their wellbeing status. The mean age of study participants was 31.25 (9.89) years (Range 18–72 years), 487 (50.4%) were male, 589 (61.0%) were single, 498 (51.6%) had a first degree, and 562 (58%) were employed. A total of 509 (52.7%) participants had high wellbeing.

Table 1

A higher proportion of those with primary and vocational educational achievement had low wellbeing while a higher proportion of those with tertiary educational achievement had high wellbeing, and these differences were statistically significant ($P < 0.001$). Similarly, a higher proportion of those who were employed had high wellbeing compared with those who were not ($p = 0.024$). Also, much more of those who were receiving full payment of their monthly income had high wellbeing compared to those who were receiving “partial” or “no” payment ($p = 0.037$). There were no statistically significant associations between wellbeing and sex, age and marital status.

As shown in Table 2, the prevalence of anxiety symptoms was 9.7%, while the prevalence of depressive symptoms was 2.9%. A total of 522(54.0%) participants had high levels of perceived social support. Also, 164(17%) participants had a low self-perceived impact of the pandemic, while 206(21.3%) had severe self-perceived impact of the COVID-19. A significantly higher proportion of participants who had anxiety symptoms ($p < 0.001$) and depressive symptoms ($p < 0.001$) had low wellbeing. A significantly greater proportion of participants who had high perceived social support ($p < 0.001$) and low self-perceived impact of the pandemic ($p < 0.001$) had high wellbeing.

Table 2

Association between wellbeing status and psychosocial and self-perceived impact of COVID-19, during the COVID-19 pandemic

Variable	Wellbeing				
	Total	Low	High	T test/ χ^2	p value
	n(%)	n (%)	n (%)		
Total	966 (100.0)	457(47.3)	509(52.7)		
Anxiety symptoms					
No Anxiety	872(90.3)	381(43.7)	491(56.3)	47.00	< 0.001
Anxiety	94(9.7)	76(80.9)	18(19.1)		
Depressive symptoms					
No depression	938(97.1)	433(46.2)	505(53.8)	17.06	< 0.001
Depression	28(2.9)	24(85.7)	4(14.3)		
Perceived Social Support					
Low	444(46.0)	251 (56.5)	193(43.5)	28.04	< 0.001
High	522(54.0)	206(39.5)	316(60.5)		
Self-perceived impact of COVID-19					
Low	164(17.0)	49(29.9)	115(70.1)	27.99	< 0.001
Mild	326(33.7)	179(54.9)	147(45.1)		
Moderate	270(28.0)	133(49.3)	137(50.7)		
Severe	206(21.3)	96(46.6)	110(53.4)		

Table 2

The results presented in Table 3 shows the mean scores of self-perceived impact of the pandemic across 10 life domains. The lowest impact of the pandemic was on parenting (2.67) and the greatest impact was on recreation/fun (4.23). More individuals who reported low wellbeing than high wellbeing had a higher COVID-19 impact score for physical self-care (3.68 vs 3.13, $p = < 0.001$).

Table 3

Association between participants' self-perceived impact of the COVID-19 pandemic on specific life domains and wellbeing status among adults in Nigeria

Life domains	Mean (SD)	Low wellbeing	High wellbeing	t-test;	p value
Recreation/Fun	4.23(2.21)	4.18(2.17)	4.27(2.24)	1.65	0.56
Education/Training	4.14(2.26)	4.16(2.23)	4.13(2.84)	0.78	0.80
Work	3.84(2.18)	3.84(2.15)	3.83(2.19)	0.11	0.91
Friends/Social Life	3.71(1.99)	3.80(1.99)	3.62(1.99)	0.006	0.18
Citizenship/Community life	3.51(2.02)	3.60(2.90)	3.44(1.96)	5.26	0.23
Spirituality	3.44(2.08)	3.37(2.00)	3.51(2.15)	7.72	0.29
Physical Self Care (diet/exercise/sleep)	3.39(1.95)	3.68(2.01)	3.13(1.81)	10.95	< 0.001
Family (other than marriage/parenting)	2.94(1.75)	2.98(1.78)	2.90(1.72)	0.14	0.48
Marriage (Couples intimate relationship)	2.88(1.80)	2.95(1.89)	2.81(1.71)	5.90	0.23
Parenting	2.67(1.78)	2.69(1.83)	2.66(1.73)	0.90	0.80

Table 4: Binary logistic regression analyses for factors associated with high wellbeing				
	P value	Odd's Ratio	95% Confidence Interval	
			lower	upper
Self-perceived impact of COVID-19 ref = Low impact^a	< .001	2.585	1.692	3.949
Anxiety symptoms ref = Anxiety (present)	< 0.001	0.236	0.134	0.413
Depression symptoms ref = Depression(present)	0.093	0.376	0.120	1.179
Education ref = Tertiary Institution^b	0.020	1.507	1.066	2.130
Employment ref = Employed	0.284	1.185	0.869	1.615
Perceived social support (PSS) ref = High PSS	< 0.001	2.396	1.782	3.220
Payment Status ref = Full payment	0.482	1.130	0.803	1.591
$X^2 = 138.008$; Pseudo $R^2 = 0.178$; $P < 0.001$				
^a All other levels of self-perceived impact were grouped together.				
^b Undergraduate and postgraduate were grouped together				

Table 3

Table 4 presents results from the multivariate binary logistic regression model to determine factors associated with high wellbeing. Individuals who experienced a low impact of the pandemic were 2.5 times greater odds of experiencing high well-being than others (AOR: 2.585; 95% CI: 1.692–3.949; $p < 0.001$). Participants who reported high perceived social support also had higher odds of reporting increased well-being than those who reported low perceived social support (AOR: 2.396; 95% CI: 1.782–3.220; $p < 0.001$). Similarly, individuals who had attained tertiary education had higher odds of reporting high wellbeing (AOR: 1.507; 95% CI: 1.066–2.130; $p = 0.020$). Individuals with anxiety symptoms had significantly lower odds of reporting increased well-being than those without anxiety symptoms (AOR:

0.236; 95% CI: 0.136–0.410; $p < 0.001$). The association with depressive symptoms was not statistically significant.

Table 4

Discussions

To the authors' knowledge, this is the first study to determine psychosocial well-being and associated characteristics in the context of the COVID-19 pandemic in sub-Saharan Africa. Our research showed that the study participants who perceived milder impacts of the COVID-19 pandemic reported that the COVID-19 pandemic impacted their physical self-care, expressed high perceived social support, and those educated to the tertiary level were more likely to report high wellbeing. Participants who had high anxiety symptoms were more likely to report low well-being. Depressive symptoms, the sex, age, marital status, employment status and income status of the study participants were not associated with their wellbeing.

The pandemic has had different levels of impact on people. Our results are consistent with the findings by previous studies [34, 35], where it has been reported that the effects of the COVID-19 pandemic on populations in developed countries have been adverse. The finding from our study indicate that the study participants who felt the impact of the COVID-19 pandemic was mild had higher wellbeing compared to those who perceived the impact of the pandemic as more severe is similar to that from a prior study [35]. Protective factors such as social support could attenuate the negative impacts of adverse events on individuals [36]. Other factors such as higher educational attainment can also be protective as suggested by findings and may reflect more significant individual social resources such as higher cognitive function. Social support improves executive function [37], enhances resilience to stress [20] and improves one's sense of coherence [38] in situations of adversities.

We also found that anxiety symptoms were associated with reduced well-being during the pandemic among this population. The pandemic may serve as a stressor that could trigger varying types of stress-related disorders that fall within the spectrum of anxiety disorders [39]. Though several studies have demonstrated that wellbeing is negatively impacted by anxiety and depression [11, 12], this study was only able to demonstrate a significant association between wellbeing and anxiety but not depressive symptoms. It is possible that the COVID-19 pandemic was associated with more of the cognitive appraisal of the potential 'threat' of the virus than the 'loss' among this study population. Anxiety disorders have been found to be more associated with threats [40].

Specifically, the associations between anxiety and wellbeing are not unusual, given the disruptions caused by the pandemic. The higher sense of well-being for persons with tertiary education may result from improved financial security associated with their higher educational status [40, 41], which reduces the risk of anxiety, as shown in prior studies [41, 42]. The pandemic disrupted the work-life schedule of individuals with far-reaching consequences on the overall livelihood of such persons [35]. This impact may be worse for Nigeria, where most Nigerians are employed in the informal sector where income is

made daily [43]. Also, being highly educated is a predictor of satisfaction in cultures where education is considered an achievement in Nigeria [41, 44, 45].

Our finding that the impact of the pandemic on physical self-care was significantly associated with wellbeing is expected. Physical self-care are strategies for improving and maintaining well-being, including physical exercise and engaging in pleasurable activities [46]. This was markedly disrupted by the lockdowns and limitations of access to recreation centres in an attempt to curtail the spread of the virus through social interactions. The documented impact was on recreation centres, pharmacies and parks [47]. Government-owned sports and recreation centres were converted into isolation centres due to limited health facilities [34]. Some of the highhanded approaches of government security personnel in enforcing the governments' restrictions eventually led to a nationwide protest tagged "END-SARS protests" [48]. This brings about the need for more studies to explore modalities for enhancing well-being by promoting physical self-care during this pandemic.

We did not find any associations between wellbeing status and sociodemographic characteristics (sex, age and marital status). Our findings on sex and age are similar to findings from another study during this pandemic [35]. While the overall impact of the pandemic has been more on the females across some populations [18, 49], overall wellbeing does not appear to differ across both sexes. A possible explanation may be that there are conceptual factors that might moderate the differences in wellbeing across the categories of these variables.

A key strength of this study is that data collection was done during the pandemic's peak in Nigeria. The online nature of the study also allowed the study participants to volunteer all information freely without any interference. It also allowed us to recruit participants across the country.

Our current study is not without some limitations. The study participants are an online population, and the majority of them had (at least) a first degree. Their lived experiences as persons with potentially higher socioeconomic status might differ from persons who are offline who are of lower socioeconomic status [50]. We also cannot determine a "cause and effect" relationship between well-being and other variables assessed because of the study's cross-sectional nature. The impact of culture on mental health may limit the generalizability of our findings to different cultures that differ significantly from the study population in context [51]. The results, however, provide new data on the psychosocial factors that may affect the wellbeing of adults in Nigeria during the COVID-19 pandemic.

Conclusion

The COVID-19 pandemic has a significant impact on the wellbeing of adults in Nigeria. Experiencing high self-perceived impact of this pandemic, access to social support, educational level and anxiety symptoms are factors that significantly determine the wellbeing of the study participants. The impact of the pandemic on physical self-care was also found to determine the likelihood of the participants having high wellbeing. Measures towards enhancing the wellbeing of this population must include strategies for ameliorating the impact of the pandemic, strengthening the social support system, with physical and

mental health promotion. Longitudinal studies are needed to examine further the strength of these associations and the outcome of intervention modalities for influencing them.

Declarations

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Disclosure statement

We declare that we have no conflict of interests.

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Table 1

Table 1: Association between Participants' characteristics and wellbeing status of adults in Nigeria during the COVID-19 pandemic [N = 966]

Variable	Wellbeing				
	Total	Low	High	T test/ χ^2	p value
	n(%)	n (%)	n (%)		
Total		457(47.3)	509(52.7)		
Sex					
Female	479(49.6)	224(46.8)	255(53.2)	0.11	0.737
Male	487(50.4)	233(47.8)	254(52.2)		
Age Mean (SD)		31.10(10.2)	31.4(9.6)	-0.46	0.644
Marital Status					
Single	589(61.0)	287(48.7)	302(51.3)	1.99	0.371
Married	338(35.0)	155(45.9)	183(54.1)		
Divorced/Separated/Widowed	39(4.0)	15(38.5)	24(61.5)		
Educational Achievement					
No formal education	20(2.1)	11(55.0)	9(45.0)	20.02	< 0.001
Primary	21(2.2)	15(71.4)	6(28.6)		
Vocational	54(5.6)	34(63.0)	20(37.0)		
Secondary	110(11.4)	60(54.5)	50(45.5)		
Tertiary education (undergraduate)	498(51.6)	234(47.0)	264(53.0)		
Tertiary education (postgraduate)	263(27.2)	103(39.2)	160(60.8)		
Employment Status					
Student	278(28.8)	139(50.0)	139(50.0)	7.48	0.024
Unemployed/Retired	126(13.0)	71(56.3)	55(43.7)		
Employed	562(58.2)	247(44.0)	315(56.0)		
Status of income (n = 544)**					
No payment	72(13.2)	39(54.2)	33(45.8)	6.61	0.037

**Total number of study participants who responded to the status of their monthly income.

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Partial payment	206(37.9)	105(51.0)	101(49.0)
Full payment	266(48.9)	109(41.0)	157(59.0)
**Total number of study participants who responded to the status of their monthly income.			