



## Assessment of the impact of COVID-19 pandemic on the mental health and wellbeing of pharmacists: A nationwide survey



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### ABSTRACT

**Objectives:** To explore the impact of the COVID-19 pandemic and work on the mental health and wellbeing of pharmacists in Nigeria and investigate the risk of exhaustion, disengagement, burnout, and their associated factors.

**Methods:** This was an online cross-sectional study among pharmacists that involved the use of mental health and wellbeing questionnaire including a 16-item OLB questionnaire. Descriptive statistical analyses were performed to determine the study distribution. Chi-square test was used to compare categorical variables, while independent sample *t*-test and one-way ANOVA were used to compare the mean values of two and three groups, respectively. Tukey posthoc test was used to compare various practice settings based on significant factors, while a two-sided Dunnett *t*-test was used to compare between groups for other significant factors. A *p*-value less than 0.05 was considered statistically significant.

**Results:** Of the 612 pharmacists invited to participate in the survey, 426 completed and submitted the questionnaire giving a response rate of 69.6%. The Cronbach's alpha for wellness and mental health survey instrument in our study population is 0.74, while the average Cronbach's alpha for a 16-item OLB questionnaire is 0.62 in our study population. The high risk of exhaustion and disengagement were met by 75.6% and 77.2% of the respondents, respectively. Eighty-three respondents (19.5%) met thresholds for either high risk of exhaustion or disengagement, while 66.2% had both a high risk of exhaustion and disengagement (burnout). Significant proportions of respondents with undergraduate pharmacy degree as the highest qualification obtained (70.6%, *p* < 0.001), in the hospital practice setting (62.8%, *p* < 0.001), and in full-time employment type (68.1%, *p* = 0.004) had the higher risk of burnout compared to their counterparts.

**Conclusion:** The COVID-19 pandemic and work significantly impacted the mental health and wellbeing of a considerable proportion of the respondents. Burnout affects the majority of pharmacists in Nigeria and is linked to undergraduate pharmacy degrees as the highest qualification obtained, hospital practice settings, and full-time employment. Thus, mitigating strategies from employees, government, and organizations are recommended to help improve working conditions and promote the well-being of pharmacists in Nigeria.

### Background

On February 27, 2020, the first COVID-19 case was reported in Nigeria.<sup>1</sup> As a result, a nationwide lockdown was declared on April 27, 2020, with effect from May 04, 2020.<sup>2</sup> to assist in breaking the transmission cycle, with work-from-home arrangements encouraged and schools and non-essential services such as entertainment establishments and interstate boundaries closed for approximately three months.<sup>3</sup> Non-urgent medical care was reduced wherever possible to redeploy healthcare resources to frontline units such as the emergency department, inpatient, and intensive care units. Pandemics place a tremendous psychological strain on healthcare

workers as a result of a combination of workplace stressors and personal fears. Similar findings were observed during the severe acute respiratory syndrome (SARS) outbreak in 2003,<sup>4–7</sup> when frontline healthcare workers experienced more emotional distress, depression, and anxiety. Burnout is a syndrome brought on by long-term workplace stress.<sup>8</sup>

The recognition of burnout in the profession of pharmacy has been increasing over the last five years.<sup>9</sup> Although all workers are concerned about stress and burnout associated with work, healthcare workers are more concerned about these issues due to the nature of their work.<sup>10</sup> According to international guidelines, burnout is considered a work-related issue.<sup>11</sup> Burnout is defined as a syndrome emanating from

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unmitigated long-term workplace stress.<sup>11</sup> It consists of three dimensions: exhaustion, negativism or cynicism, and decreased productivity.<sup>11</sup> However, evidence has shown that disengagement and exhaustion are the major components of burnout while reduced personal accomplishment plays a less important role.<sup>12,13</sup>

Several factors contribute to burnout in healthcare workers, including a rapidly varying workplace, poor remunerations, increased needs for clerical and record-keeping works, and emotion-laden patient care.<sup>14</sup> These elements may likely be responsible for the greater prevalence of burnout in healthcare workers compared to the general population.<sup>15</sup> In the past twenty years, the pharmacist's role has expanded with increasingly patient-centered roles.<sup>16</sup> Stressors reported by pharmacists are consistent with those reported by physicians, which include an unfriendly work environment, the burden of non-clinical duties, and excessive workloads combined with a lack of resources required to achieve desired goals and outcomes.<sup>14,17–19</sup> Furthermore, evidence supports the claim that pharmacists are suffering from significant work-related burnout and stress. According to recent survey results, 61.2% of pharmacists reported high levels of burnout in the workplace, which is one of the highest rates among healthcare professionals. This rate is higher than that of surgeons, oncologists, and emergency physicians.<sup>19</sup>

Pharmacists are the most accessible health care professionals,<sup>19</sup> and are often the first point of contact with the health system in many settings.<sup>20–22</sup> In Nigeria, the majority of pharmacists work in the hospital and community settings.<sup>23</sup> A literature search showed that some studies have been conducted on burnout among pharmacists.<sup>19,24–26</sup> Although these previous studies are not of African origin. Furthermore, burnout among pharmacists during a pandemic is poorly understood, particularly in terms of various aspects of the work environment and concomitant psychological responses such as anxiety and depression. However, evidence suggests that the pressure on the pharmacy workforce, as well as the resulting impact on mental health and well-being, is clearly a problem, one that is likely to have been exacerbated by the COVID-19 pandemic. For example, the impact of COVID-19 on healthcare systems has been linked to a higher incidence of burnout and an increase in the incidence of mental health conditions in healthcare professionals in 2020.<sup>27–30</sup> On a global scale, it has been recognized that, while many pharmacists face the same issues as other frontline healthcare professionals, the unique aspects of the pharmacy role exacerbate challenges.<sup>28,31</sup> There is a need to continue advocating for pharmacy and to ensure that pharmacists' mental health and wellbeing at the workplace is closely aligned with the profession's current needs. Therefore, the objectives of the present study were to explore the impact of the COVID-19 pandemic and work on the mental health and wellbeing of pharmacists in Nigeria and investigate the risk of exhaustion, disengagement, burnout, and their potential associated factors.

## Methods

### Study design and settings

An online cross-sectional survey was administered to actively practicing pharmacists in Nigeria.

### Sample size

The minimum sample size required for the study was determined using an online Raosoft sample size calculator.<sup>32</sup> The approximate population of the Nigerian pharmacist of 30,000 as of December 2020, 5.0% margin of error and a 95.0% confidence interval were used to calculate the sample size. Thus, the recommended minimum sample size for the study was 380.

### Study population, eligibility criteria, and sampling

All actively practicing pharmacists in Nigeria that belonged to at least one pharmacists' WhatsApp group were the target population for the survey. Pharmacy students, provisionally registered pharmacists, and retirees

were excluded from the study. A representative convenience sample was generated from all active pharmacists' WhatsApp groups based on the state of practice, seventeen potential participants were selected from each of the 36 states of Nigeria, including Federal Capital Territory (Abuja).

### Study instrument

The study questionnaire (see Appendix I) consists of three sections. Sections one (7-socio-demographics items) and two (9-mental health and wellbeing items) were adapted from a previous study,<sup>30</sup> while section three which explores the extent of burnout consists of a 16-item Oldenburg Burnout Inventory (OLBI).<sup>33</sup> The OLBI was developed to conceptualize and measure two concepts (disengagement and exhaustion) related to burnout. Eight questions each assess disengagement and exhaustion domains, respectively. Each question is answered on a Likert scale from 1 to 4, "strongly agree" to "strongly disagree". Reverse scoring is applied to the negatively worded items (2, 3, 4, 6, 8, 9, 11, and 12) such that strongly agree is scored-4 and strongly disagree-1 (higher scores indicate more burnout).

The sum of an individual burnout score is calculated based on each participant's answers. Higher scores indicate higher exhaustion and disengagement. The OLBI has advantages over the Maslach burnout inventory (MBI), as it involves both negatively and positively framed questions for each domain thereby reducing the risk of artefactual relationship and concurrent response biases,<sup>34,35</sup> hence making it a better psychometric scale.<sup>36,37</sup> The OLBI has been validated for use in a range of diverse populations and settings.<sup>38–40</sup>

### Ethical considerations

Ethical approval for the study was granted by the Research Review Board of the Faculty of Pharmaceutical Sciences, Gombe State University, Nigeria. Participants had the free will to participate, while informed consent was obtained from potential respondents. Access to the study questions was possible only when the respondents checked a compulsory informed consent field. Respondents were assured of the confidentiality and anonymity of the data collected. No incentive/reward was given to the respondents for completing the survey.

### Data collection

The data collection started on 13 December 2020 and ended on 28 February 2021. Data were collected using a Google form questionnaire via various potential respondents' WhatsApp platforms. The online questionnaire allowed only one response per respondent. The information collected included respondents' socio-demographics, mental and wellbeing, and burnout data. Periodic reminders were sent to selected respondents who had not completed the survey. The survey portal was closed after two weeks of no further responses.

### Data management

Two aggregate variables were calculated on subsets of the survey that measured disengagement and emotional exhaustion within the study population. Each participant's domain means were calculated. Burnout domain means cut-off points of  $\geq 2.25$  for exhaustion and  $\geq 2.10$  for disengagement respectively were used to identify participants at high risk of burnout based on their responses. These cut-off scores were adapted from previous studies.<sup>30,41,42</sup> The exhaustion was considered low risk if the index was  $< 2.25$ , and high risk if the index was  $\geq 2.25$ . Similarly, disengagement was considered low risk if the index was  $< 2.10$ , and high risk, if the index was  $\geq 2.10$ . For this study, the presence of both high risks of exhaustion and disengagement in an individual was considered to be burnout.

## Statistical analysis

Descriptive statistics were used to summarize socio-demographic characteristics. Continuous variables were presented as mean  $\pm$  standard deviation (SD), while categorical variables were reported as frequencies (n) and proportions (%). Chi-square test was used to compare categorical variables, while independent sample *t*-test and one-way ANOVA were used to compare the mean values of two and three groups, respectively. Tukey posthoc test was used to compare various practice settings based on significant factors, while a two-sided Dunnett *t*-test was used to compare between groups for other significant factors. Statistically, a significant level was set at a *p*-value less than 0.05. IBM Statistical Products and Services Solution (SPSS) version 20 for Windows software was used for statistical analysis.

## Results

Of the 612 pharmacists invited to participate in the survey, 426 successfully completed and submitted the questionnaire giving a response rate of 69.6%. The Cronbach's alpha for wellness and mental health survey instrument in our study population is 0.74. Also, the Cronbach's alpha for OLBI-Exhaustion is 0.73 and 0.51 for Disengagement, while the average Cronbach's alpha recorded in our study population is 0.62. The average age of the respondents was  $35.42 \pm 9.59$  years. The majority of the respondents were males (60.8%,  $n = 259$ ), married 56.1% ( $n = 239$ ), in the hospital setting (54.2%,  $n = 231$ ), in full-time employment (72.5%,  $n = 309$ ), and those that had practiced pharmacy for more than 10 years (37.8%,  $n = 161$ ). The highest academic qualification obtained by most of the respondents (63.6%) was B. Pharm or/and PharmD (64.6%,  $n = 275$ ). The detailed socio-demographic results of the study population are shown in Table 1.

### Overall mental health and well-being

Nearly half of all respondents (49.8%,  $n = 212$ ) reported good overall mental health and well-being in the previous year, while 33.6% ( $n = 143$ ) reported very good, 2.8% ( $n = 12$ ) reported not good, and 0.7% ( $n = 3$ ) reported poor overall mental health and well-being. The majority

**Table 1**  
Socio-demographics characteristics of the respondents ( $N = 426$ ).

Variables	Frequency	Percent
Age group (years)		
<36	275	64.6
36–55	127	29.8
>55	24	5.6
Sex		
Female	167	39.2
Male	259	60.8
Marital status		
Single	187	43.9
Married	239	56.1
Highest qualification		
B. Pharm/PharmD	275	64.6
MSc/M. Pharm/Fellowship/PhD	151	35.4
Practice setting		
Community	82	19.2
Hospital	231	54.2
Academic/Educational body	88	20.7
Pharmaceutical industry	19	4.5
Primary care	6	1.4
Years of practice as a licensed pharmacist		
<5	152	35.7
5–10	113	26.5
>10	161	37.8
Current employment status		
Full-Time	309	72.5
Part-Time	117	27.5

B. Pharm: Bachelor of Pharmacy; MSc: Master of Science; M. Pharm: Master of Pharmacy; PharmD: Doctor of Pharmacy; Ph.D.: Doctor of Philosophy.

of respondents working in the hospital reported that their mental health and wellbeing were good (60.4%,  $n = 128/212$ ) or very good (46.9%,  $n = 67/143$ ), while the majority of respondents working in community and academic/educational institutions reported good (17.5%,  $n = 37/212$ , respectively) or very good mental health and wellbeing (23.1%,  $n = 33/143$  and 25.2%,  $n = 36/143$ , respectively).

### Impact of COVID-19 on mental health and wellbeing

The COVID-19 pandemic had a significant impact on the mental health and wellbeing of 27.7% ( $n = 118$ ) of respondents in the last year, while 43.4% ( $n = 185$ ) was impacted to a partial extent, and 16.2% ( $n = 69$ ) to no extent). The majority of respondents working in the hospital reported that COVID-19 impacted their mental health and wellbeing to a partial extent (74.6%,  $n = 138/185$ ) or significant extent (45.8%,  $n = 54/118$ ), whereas the majority of respondents working in the community setting reported that their mental health and wellbeing was impacted to no extent (34.8%,  $n = 24/69$ ).

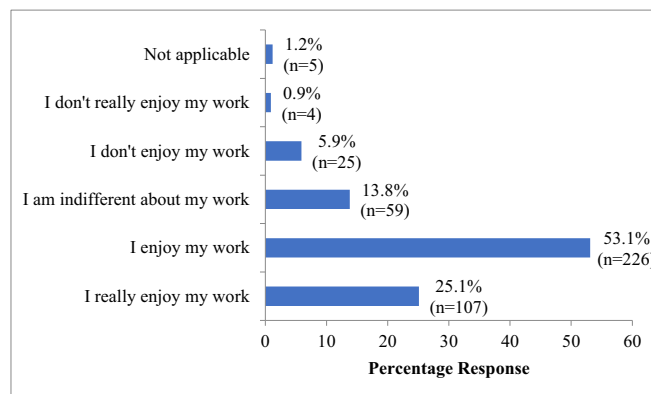
### Impact of work on mental health and wellbeing

Overall, 22.5% of respondents reported that their jobs had a negative impact on their mental health and well-being. A significant proportion of respondents working in the hospital reported that their work had a negative impact on their mental health and wellbeing (59.4%,  $n = 57/96$ ), compared to 22.9% (22.9%) of respondents working in the community setting.

When respondents were asked to rate their enjoyment of work on a scale of 'I really enjoy my work' to 'I really don't enjoy my work,' a wide range of responses were received, with the majority of respondents on the more positive end of the scale. More than two-thirds of respondents (78.2%) said they either enjoyed or really enjoyed their work, compared to 6.8% who reported that they did not enjoy or really enjoyed their work (Fig. 1). The risk of burnout was highest among those who did not enjoy their jobs (96.0%, 24/25) compared to 62.4% (141/226) among those who did.

### Frequency of worries around the quality of service and making mistakes at work

The majority (32.6%,  $n = 139$  and 30.0%,  $n = 128$ , respectively) of the respondents reported that they were worried about the quality of service and making mistakes in their work occasionally, followed by sometimes (30.8%,  $n = 131$  and 29.8%,  $n = 127$ , respectively).. When compared to those working in the community setting, those in hospital practice were more likely to report that they were always worried about the quality of service (63.0%, 34/54 vs. 22.2%, 12/54). In addition, those in hospital practice were more likely to report that they were always worried about making mistakes than those working in the community setting (53.8%,



**Fig. 1.** Respondents' rating of their work enjoyment.

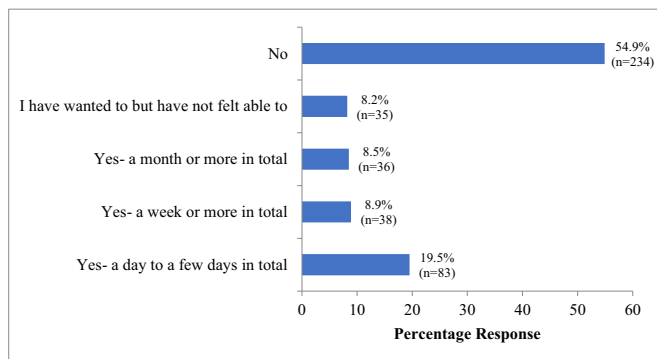


Fig. 2. Time taken off work (due to sick leave) by the respondents.

21/39 vs. 35.9%, 14/39). However, respondents with fewer practice years of experience appeared to be more worried about the service quality and making mistakes at work than those with several practice years of experience. For example, 64.8% (35/54) of respondents with less than 10 years of practice experience reported they were always worried about the service quality, compared to 35.2% (19/54) of respondents with 10 years or more of practice experience. A greater proportion 56.4% (22/39) of respondents with less than 10 years of practice experience reported that they were always concerned about making mistakes, compared to 43.6% (17/39) of respondents with 10 years or more of practice experience.

Further analysis of the responses revealed that 77.8% (42/54) of all respondents who reported that they were always worried about the quality of service were at high risk of burnout, compared to 44.8% (39/87) of those who said that they were never concerned. Similarly, 75.5% (31/39) of all respondents who selected that they were always worried about making mistakes in their work were at high risk of burnout, compared to 35.0% (35/100) of respondents who selected never.

**Time off work (sick leave)**

The majority of respondents (54.9%) had not taken any sick leave in the previous year. More than one-third (36.7%) of respondents had taken between a day and a month or more of sick leave in the previous year (sum of all yes answer options) (Fig. 2). Furthermore, the majority of respondents who had taken time off work (75.2%, 118/157) were at high risk of burnout. In comparison, 61.4% (164/267) of those who had never taken sick leave were at high risk of burnout. A link can also be found between respondents who reported that their job had a negative impact on their mental health and well-being and the frequency with which they took sick leave. For example, 50.0% (48/96) of those who stated that their work had a

negative impact on their mental health and wellbeing had taken a day to a month or more of sick leave in the previous year. This compares to only 31.6% (68/215) of respondents who said their job had a positive impact on their mental health and well-being. In addition, 8.2% of respondents reported that they had wanted to take time off work for sick leave but had not felt able to do so (Fig. 2). Almost all (80.0%, 28/35) of these respondents were at a high risk of burnout.

**Respondents who have considered leaving their job or the profession**

Responses to the question of whether respondents had considered leaving their job or profession (due to the impact of work on their mental health and wellbeing) show that 19.3% of respondents had considered leaving their current job, 7.5% had considered leaving the pharmacy profession, and 6.3% had not considered either option. Retention appears to be a greater issue in some sectors than others. For example, a higher proportion of respondents working in the hospitals (43.8%, n = 14/32) stated they had considered leaving the pharmacy profession, compared to 18.8% (6/32) working in the community setting (Fig. 3).

**Risks of exhaustion, disengagement, and burnout**

The average OLBIs scores were 2.50 ± 0.45 and 2.32 ± 0.35 for exhaustion and disengagement, respectively. The high risk of exhaustion and disengagement were met by 75.6% and 77.2% of the respondents, respectively. Eighty-three respondents (19.5%) met thresholds for either high risk of exhaustion or disengagement, while 66.2% had both a high risk of exhaustion and disengagement (burnout) as shown in Fig. 4.

The most frequently reported reasons for burnout were long working hours and lack of appropriate remuneration (12.8%) each, followed by inadequate staffing (12.6%) as shown in Fig. 5.

Table 2 shows that the risk of exhaustion differed significantly according to respondents' age, sex, marital status, highest qualification obtained, practice area, years of practice experience, and employment type (p < 0.05). Respondents who aged less than 36 years had significantly higher mean exhaustion score compared to those who aged 36–55 years, and more than 55 years (20.4 ± 3.2 vs. 19.4 ± 4.4, p = 0.028, and 20.4 ± 3.2 vs. 18.6 ± 2.7, p = 0.002). Female respondents had a significantly higher mean exhaustion score compared to their male counterparts (20.8 ± 3.5 vs. 19.5 ± 3.6, p < 0.001). A significantly higher mean exhaustion score was noted in the respondents with single marital status compared to the married (20.6 ± 3.1 vs. 19.5 ± 3.9, p = 0.002). Respondents who had undergraduate degrees as the highest qualification had a significantly higher mean exhaustion score compared to their counterparts with post-graduate degrees (20.8 ± 3.4 vs. 18.6 ± 3.7, p < 0.001). Community pharmacists had a significantly higher mean exhaustion score compared to

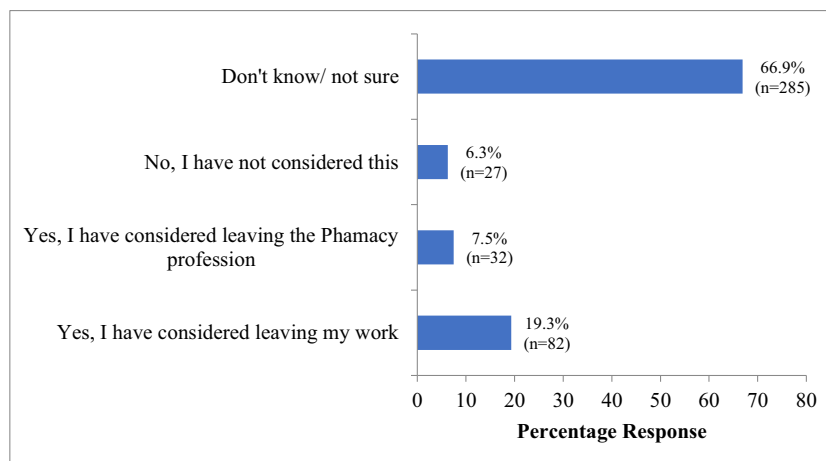


Fig. 3. Respondents considerations on leaving their job or the pharmacy profession.

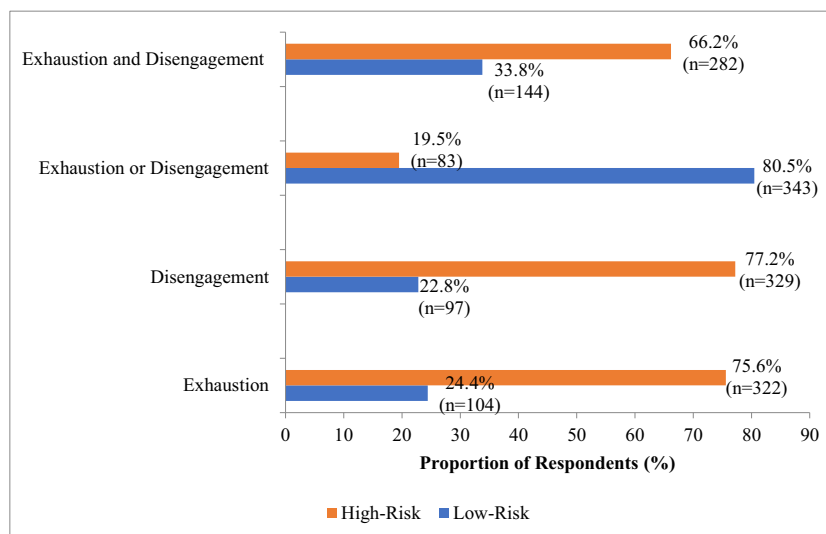


Fig. 4. Prevalence of the risk of exhaustion, disengagement, and burnout in the study population.

academic pharmacists ( $19.9 \pm 3.8$  vs.  $18.3 \pm 3.3$ ,  $p = 0.019$ ). Hospital pharmacists had a significantly higher mean exhaustion score compared to academic and industrial pharmacists ( $20.8 \pm 3.5$  vs.  $19.9 \pm 3.8$ ,  $p < 0.001$ , and  $20.8 \pm 3.5$  vs.  $18.3 \pm 2.9$ ,  $p = 0.019$ ). Also, a significantly higher mean exhaustion score was observed among pharmacists with less than 5 years of practice experience compared to those who had 5–9 years, and 10 years or more of practice experiences ( $21.3 \pm 3.4$  vs.  $19.4 \pm 3.4$ ,  $p < 0.001$ ;  $21.3 \pm 3.4$  vs.  $19.1 \pm 3.6$ ,  $p < 0.001$ , respectively). Respondents who had part-time employment had a significantly higher mean exhaustion score compared to those who had full-time employment ( $19.4 \pm 2.7$  vs.  $18.2 \pm 2.7$ ,  $p < 0.001$ ).

Disengagement scores differed significantly according to respondents' age, the highest qualification obtained, practice area, years of practice experience, and employment type ( $p < 0.05$ ) (Table 2). Respondents who aged less than 36 years had significantly higher mean disengagement score compared to those who aged 36–55 years, and more than 55 years ( $18.9 \pm 2.7$  vs.  $17.8 \pm 2.9$ ,  $p < 0.001$ , and  $18.9 \pm 2.7$  vs.  $17.7 \pm 2.5$ ,  $p = 0.045$ , respectively). Respondents who had undergraduate degrees as the highest qualification had significantly higher mean disengagement

score compared to their counterparts with postgraduate degrees ( $19.2 \pm 2.5$  vs.  $17.2 \pm 2.8$ ,  $p < 0.001$ ). Community, hospital, and industrial pharmacists had significantly higher mean disengagement score compared to academic pharmacists ( $18.3 \pm 2.5$  vs.  $17.0 \pm 2.5$ ,  $p = 0.011$ ;  $19.1 \pm 2.8$  vs.  $17.0 \pm 2.5$ ,  $p < 0.001$ ;  $19.1 \pm 2.8$  vs.  $17.0 \pm 2.5$ ,  $p = 0.001$ , respectively). A significantly higher mean disengagement score was observed among respondents with less than 5 years of practice experience compared to those who had 10 years or more of practice experience ( $19.0 \pm 2.8$  vs.  $18.0 \pm 2.5$ ,  $p = 0.003$ ). Respondents who had part-time employment had a significantly higher mean disengagement score compared to those who had full-time employment ( $20.6 \pm 3.2$  vs.  $19.7 \pm 3.7$ ,  $p < 0.001$ ).

A majority (199) of the respondents with undergraduate degrees as the highest qualification obtained had burnout compared to 83 (29.4%) who had postgraduate degrees with a significant difference ( $p < 0.001$ ). A significantly higher proportion (62.8%,  $n = 177$ ,  $p < 0.001$ ) of respondents who were in hospital practice reported burnout compared to their counterparts in other pharmacy practice settings. A significantly ( $p = 0.004$ ) higher burnout was observed among full-time pharmacists compared to part-time pharmacists (Table 2).

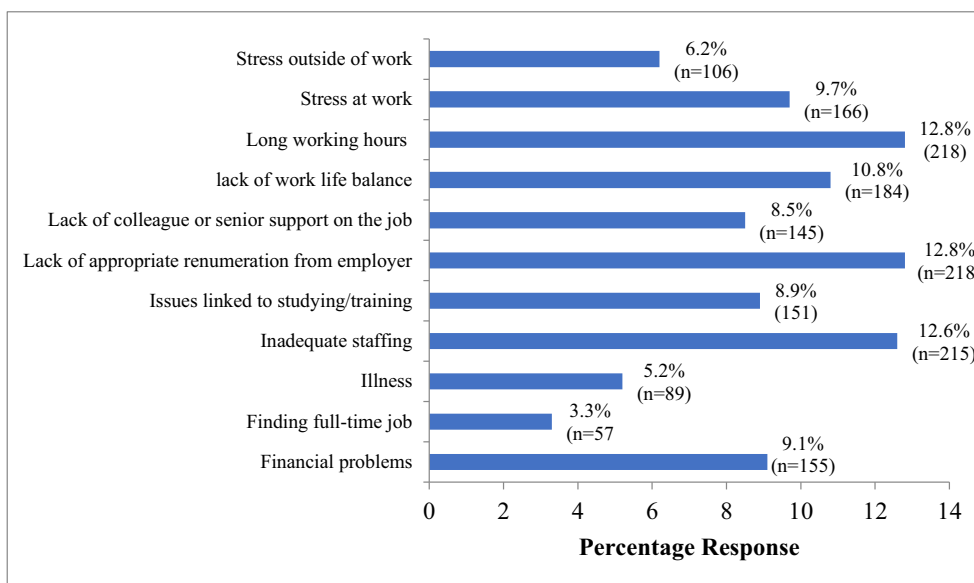


Fig. 5. Reported reasons for burnout. #Multiple responses were allowed.

**Table 2**  
Factors associated with exhaustion, disengagement, and burnout among the respondents.

Variable	Exhaustion		Disengagement		Burnout		P value
	Mean (SD)	P value	Mean (SD)	P value	No n (%)	Yes n (%)	
Age group (years)							
<36	20.4 (3.2)	0.005 <sup>∗a</sup>	18.9 (2.7)	<0.001 <sup>∗a</sup>	85 (59.0)	190 (67.4)	0.055 <sup>c</sup>
36–55	19.4 (4.4)		17.8 (2.9)		46 (31.9)	81 (28.7)	
>55	18.6 (2.7)		17.7 (2.5)		13 (9.0)	11 (3.9)	
Sex							
Female	20.8 (3.5)	<0.001 <sup>∗b</sup>	18.6 (2.8)	0.837 <sup>b</sup>	55 (38.2)	112 (39.7)	0.761 <sup>c</sup>
Male	19.5 (3.6)		18.5 (2.7)		89 (61.8)	170 (60.3)	
Marital status							
Single	20.6 (3.1)	0.002 <sup>∗b</sup>	18.8 (2.6)	0.064 <sup>b</sup>	69 (47.9)	118 (41.8)	0.232 <sup>c</sup>
Married	19.5 (3.9)		18.3 (2.9)		75 (52.1)	164 (58.2)	
Highest qualification							
BPharm/PharmD	20.8 (3.4)	<0.001 <sup>∗a</sup>	19.2 (2.5)	<0.001 <sup>∗a</sup>	76 (52.8)	199 (70.6)	<0.001 <sup>∗c</sup>
MSc/MPharm/Fellowship/PhD	18.6 (3.7)		17.2 (2.8)		68 (47.2)	83 (29.4)	
Practice setting							
Community	19.9 (3.8)	<0.001 <sup>∗a</sup>	18.3 (2.5)	<0.001 <sup>∗a</sup>	30 (20.8)	52 (18.4)	<0.001 <sup>∗c</sup>
Hospital	20.8 (3.5)		19.1 (2.8)		54 (37.5)	177 (62.8)	
Academic/Educational body	18.3 (3.3)		17.0 (2.5)		55 (38.2)	33 (11.7)	
Pharmaceutical industry	18.3 (2.9)		19.7 (2.4)		5 (3.5)	14 (5.0)	
Primary care settings	20.3 (1.5)		18.3 (2.1)		0 (0.0)	6 (2.1)	
Years of practice as a licensed pharmacist							
0–4	21.3 (3.4)	0.006 <sup>∗a</sup>	19.0 (2.8)	<0.001 <sup>∗a</sup>	47 (32.6)	105 (37.2)	0.476 <sup>c</sup>
5–9	19.4 (3.4)		18.5 (2.9)		37 (25.7)	76 (27.0)	
≥10	19.1 (3.6)		18.0 (2.5)		60 (41.7)	101 (35.8)	
Employment type							
Full-time	18.2 (2.7)	<0.001 <sup>∗b</sup>	19.7 (3.7)	<0.001 <sup>∗b</sup>	117 (81.2)	192 (68.1)	0.004 <sup>∗c</sup>
Part-time	19.4 (2.7)		20.6 (3.2)		27 (18.8)	90 (31.9)	

<sup>∗</sup> Significant at  $p < 0.05$ ; SD: Standard Deviation; B. Pharm: Bachelor of Pharmacy; MSc: Master of Science; M. Pharm: Master of Pharmacy; PharmD: Doctor of Pharmacy; Ph.D.: Doctor of Philosophy.

<sup>a</sup> ANOVA for variables with more than two groups; <sup>b</sup>Independent t-test for variables with two groups; <sup>c</sup>Chi-square test.

## Discussion

To our knowledge, no previous study has assessed burnout among Nigerian pharmacists. The paucity of data on the increasingly poor mental health and wellbeing of healthcare professionals, especially in resource-limited countries makes the results of the present study add to the existing mental health literature from Africa.

The wellness and mental health survey and OLB questionnaire exhibited good reliability in our study population. A considerable proportion of the respondents reported poor overall mental health and wellbeing due to the impact of the COVID-19 pandemic and work. The respondents who did not enjoy their work had the highest risk of burnout. A high number of our respondents reported frequent concerns about the quality of service and making mistakes in their work. The majority of respondents had not taken any time off work for sick leave in the last year, while a sizable proportion of respondents who had wanted to take time off work for sick leave but had not felt able to do so were at high risk of burnout. Also, a considerable number of respondents had considered leaving the pharmacy profession. Overall, burnout affects the majority of our respondents (66.2%) mostly due to long working hours and a lack of appropriate remuneration. Respondents' age, sex, marital status, highest qualification obtained, practice area, years of practice experience, and employment type were identified as significant factors associated with the risk of exhaustion. Similarly, significant factors associated with the risk of disengagement were age, the highest qualification obtained, practice area, years of practice experience, and employment type. Lastly, the risk of burnout was significantly associated with the highest qualification obtained, practice area, and employment type.

The average Cronbach's alpha for OLB was high in our study, although a low value was recorded for the Disengagement domain. Nonetheless, OLB with 16 items is a valid and reliable instrument to assess the burnout status among pharmacists in Nigeria. However, the low reliability for the Disengagement domain suggests that its items were either too easy or too difficult for our respondents. The COVID-19 pandemic impacted the mental

health and wellbeing of a sizeable proportion of our respondents. This finding is consistent with previous reports of the detrimental impact of the COVID-19 pandemic on pharmacy professionals and other healthcare workers.<sup>28–30,43</sup> Evidence from Britain has also shown an increase in the proportion of working adults, particularly key workers, experiencing some form of mental health condition during the COVID-19 pandemic.<sup>44</sup> A considerable proportion of pharmacists working in hospitals reported that work impacted their mental health and wellbeing negatively. This suggests that, while the pandemic may have exacerbated issues around long working hours, poor remuneration, workload, and staffing in the hospital, these factors likely existed prior to the pandemic and are still negatively affecting the mental health and wellbeing of pharmacists in the hospital practice.

Our study revealed that burnout affects the majority of pharmacists included in our study. This finding is comparable with that of a recent survey on the wellbeing and mental health of pharmacists in the United Kingdom (UK) that reported a high risk of burnout.<sup>30</sup> Similarly, a high-risk of burnout among pharmacists has also been reported in the US.<sup>10</sup> These findings demonstrate that pharmacists' burnout is a global mental health issue with wider implications on healthcare delivery and general pharmacy workforce retention. Documented problems that plague pharmacists at the workplace are high workloads, staff shortage, long working hours with few breaks, and a lack of work-life balance.<sup>24</sup> Thus, there is a need for mental health support for the healthcare workforce globally, especially those in developing countries where there is an acute shortage of them. This is because evidence has shown that healthcare workforce burnout is associated with a decline in productivity,<sup>45</sup> job dissatisfaction,<sup>46</sup> and a high tendency to quit one's current practice while in active service.<sup>47,48</sup> Additionally, our results compare favorably with those from a study of healthcare professionals.<sup>24</sup> This finding highlights that burnout is not only pharmacists' problem but that of other health professionals too. This is because many other healthcare professionals experience many issues at the workplace as pharmacists do. It is worthy to note that pharmacists working in hospital and community settings were most affected by burnout.

In line with previous studies,<sup>30,49,50</sup> These findings imply that the area of pharmacy practice may have an impact on mental health and wellbeing. The most frequently reported reasons for burnout in our study were long working hours and poor remuneration. Comparable with our result, a similar study conducted in Saudi Arabia reported a negative correlation between wage satisfaction and emotional exhaustion,<sup>51</sup> while another study in the US reported long working hours as a major contributor to burnout.<sup>19</sup> These findings underscore the need for improvement in the basic salary and working hours, especially for pharmacists working in the hospital and community settings.

Also, in our study, the risk of burnout was highest among respondents who did not enjoy their job. These findings imply that there is a link between the risk of burnout and a lack of job satisfaction. Other studies have found a link between job satisfaction and burnout in general, implying that a lack of job satisfaction is linked to exhaustion and a high risk of burnout.<sup>40,52</sup> A large number of our respondents expressed frequent concerns about service quality and making mistakes in their work. Existing evidence on the relationship between poor mental health, burnout, and the risk of errors occurring emphasizes the importance of good mental health and wellbeing in the workplace to ensure service quality and avoid medication errors.<sup>30,53</sup> It is important to note that these findings only reflect respondents' personal concerns and are not indicative of actual errors or service quality. More research would be required to determine whether these concerns were reflected in error reporting.

According to our findings, a sizable proportion of respondents who wanted to take sick leave but were not able to do so were at high risk of burnout. The reasons for this were not explored in this survey, but findings from a similar study suggest that the stigma associated with mental health often acts as a barrier, preventing people from accepting help or requesting time off.<sup>27</sup> Similarly, a researcher discovered that many workplaces' current management practices and behaviors are incompatible with providing high-quality mental health and wellbeing services to employees.<sup>54</sup> This is consistent with the findings of a previous study, which found that the pharmacy workplace culture was not conducive to good mental health and wellbeing.<sup>55</sup>

A significant proportion of respondents in our study had considered leaving the pharmacy profession. Reasons for some respondents considering leaving the profession were not explored in our survey, despite previous reports of low job satisfaction, low morale, poor remuneration, high workload, pressure, dislike for the pharmacy profession, and a lack of respect, recognition, and support from employers.<sup>56</sup>

The present study identified age as a significant factor associated with exhaustion, and disengagement with respondents aged less than 36 years having a higher risk than other age groups. This finding is consistent with that of a similar Nigerian study among physicians in which a higher risk of disengagement was reported among the younger age group.<sup>57</sup> Comparable to our finding, a study conducted among community pharmacists in Turkey found higher depersonalized scores and lower personal accomplishment scores in pharmacists who were below the age of 35 years than those who were 35 years or above.<sup>58</sup> Similarly, a significantly higher risk of exhaustion was observed among respondents with less than 5 years of practice experience compared to other years of experience. This result is congruent with that of a previous UK study.<sup>30</sup> Another previous study conducted among the community pharmacists reported high risk of burnout among those in the early career stage.<sup>59</sup> Comparable results were obtained in other studies conducted elsewhere.<sup>58,60</sup> The same findings were noted in nurses in Turkey.<sup>61</sup>

Taken together when young and inexperienced pharmacists are confronted with the realities of the job they have chosen, they frequently begin with high expectations and then go through a period of difficult adaptation due to a lack of skills. This leads to feelings of incompetence and uncertainty in their work, as well as early experiences of exhaustion and disengagement. It is possible that as their experience grows, such feelings diminished and they develop a level of tolerance for the gap between expectation and reality; this, in turn, may explain the decrease in exhaustion and disengagement observed in older pharmacists with more years of practice

experience. It is also possible that job satisfaction increases with age and experience, which may reduce exhaustion and disengagement. This underscores the need for workplace mentoring programs for pharmacy students and young pharmacists to adequately prepare them for real-world practice. Additionally, participation of pharmacists early in their career in further education and training in managing workplace stress could be an effective strategy to reduce burn and improve work skills. On the contrary, a previous study noted that pharmacists working for more than 30 years were at the highest risk of burnout.<sup>17</sup> These discrepancies may be due to differences in the study designs, populations, and working conditions.

Female respondents had a significantly higher risk of exhaustion compared to their male counterparts. This has been noted in other studies in Sweden and Singapore.<sup>24,62</sup> Differences in the genetic constitution of both genders could be responsible for this observation. Evidence has shown that the cyclical changes of the female hormones enhance the stress response.<sup>63</sup> A high level of stress may ultimately result in exhaustion. Also, greater susceptibility to the work-family role in pandemic<sup>64</sup> coupled with other factors, such as longer work hours, and fears of infecting loved ones at home may have contributed to a higher risk of exhaustion among females. This finding is inconsistent with that of previous studies conducted in Turkey, and Singapore which reported no significant sex-specific associations.<sup>24,58</sup>

A significantly higher risk of exhaustion was noted among respondents of single-married status compared to the married. Our finding is similar to that of other studies.<sup>9,65</sup> Evidence has shown marriage as a good promoter of mental health and wellbeing.<sup>66</sup> These findings underscore the need for organizations to build social support systems at the workplace for pharmacists with single-marital status to boost their morale and reduce the risk of exhaustion at work. Respondents who had undergraduate degrees as the highest qualification obtained had a significantly higher risk of exhaustion, disengagement, and burnout compared to their counterparts with postgraduate degrees. Poor remuneration and higher workload usually associated with lower education could be responsible for these findings. In contrast, a similar study reported that higher education was associated with higher disengagement rates.<sup>24</sup>

Hospital and community pharmacists had significantly higher risks of exhaustion, disengagement, and burnout compared to academic pharmacists. This finding suggests that respondents in the hospital and community settings experience higher stress levels compared to those in the academic setting. Similar outcomes were observed by other researchers who reported higher exhaustion among hospital pharmacists,<sup>67</sup> and community pharmacists.<sup>30</sup> In a recent study, 53% of healthcare professionals providing care to COVID-19 patients experienced high levels of burnout.<sup>68</sup> This could be due to pressure exerted on the health systems during the pandemic. However, an American study among clinical pharmacists showed no significant difference in burnout rates in hospital and other practice settings.<sup>19</sup> Differences in pharmacy practices across countries could be responsible for the observed variation.

Respondents who had part-time employment had a significantly higher risk of exhaustion, and disengagement compared to those who had full-time employment. This may be due to job insecurity associated with part-time employment. Therefore, pharmacists in part-time employment are much less likely to stay for a long time as they will be in constant search of more rewarding full-time employment opportunities elsewhere. Conversely, pharmacists who had full-time employment had a significantly higher risk of burnout compared to those who had part-time employment. This result is consistent with that of a study conducted in Italy.<sup>25</sup> This could be due to long working hours and the lack of work-life balance associated with full-time jobs.

## Strengths and limitations

The main strength of the study relates to its scope, investigating burnout in pharmacists from various practice settings. The survey collected data on the effect of the COVID-19 pandemic on mental health and well-being. In addition, we used the OLB which is a validated instrument with good

reliability. Conversely, the study had some limitations. Although a representative convenience sample was generated from all active pharmacists' WhatsApp groups to ensure a fair national representation, the sampled respondents may not be a true representation of pharmacists in Nigeria. Another limitation is the inability to explore the reasons why a sizable proportion of respondents who were at high risk of burnout but had not taken time off work for sick leave. Also, reasons for some respondents considering leaving the profession were not explored. The inability to assess changes in burnout of individual respondents with time due to the cross-sectional study design was also a limitation. Lastly, generalizing burnout in the study groups may not give the true picture of the problem since each group has its peculiarity

## Conclusion

The COVID-19 pandemic significantly impacted the mental health and wellbeing of a considerable proportion of the respondents. Burnout affects the majority of pharmacists in Nigeria and is linked to undergraduate degrees as the highest qualification obtained, hospital and community practice settings, and full-time employment. These findings suggest that the culture of many workplaces is not conducive for positive mental health and wellbeing and that this is having a detrimental impact on productivity and the profession at large. Thus, the government should formulate and implement employee-friendly workplace mental health and wellbeing policies, while organizations should provide mitigating measures such as ensuring that workers have work-life balance, nurturing connection and empathy, reducing long working hours, rotating between units, team building, stress management training and wellness programs. Others are regular

meetings with colleagues, encouraging open communication and participation of employees in planning and implementation of programs, as well as ensuring improved work and social environments. Finally, employees can also help prevent or mitigate burnout in the workplace by reducing exposure to work stressors, and prioritizing self-care in terms of good sleep habits, nutrition, exercise, social connection, meditating, and enjoying nature to help replenish physical and emotional energy as well as capacity to focus

## Author contributions

EWB conceived and designed the study. EWB, GYA and HA collected the data. EWB and RNO prepared the manuscript draft, EWB and RNO performed the data analyses, RNO revised the original draft. All authors approved the final version

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

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## Appendix I

### Survey Questions

#### SECTION 1

##### Socio-demographics

1. What is your year of birth? \_\_\_\_\_
2. What is your sex? Male  Female
3. What is your marital status? Single  Married
4. What is your highest qualification? B. Pharm  PharmD  MSc/M. Pharm  Post-graduate Pharmacy Fellowship  PhD
5. What is your main area of practice? Community  Hospital  Academic/Educational body  Pharmaceutical industry  Primary care
6. At what stage of your career are you? < 5 years  5 – 10 years  >10 years
7. What is your employment type? Part-time  full-time

#### SECTION 2

##### Your Mental Health and Wellbeing

8. In the last year, how would you rate your overall mental health and wellbeing?  
Very good  Good  Okay  Not good  Poor
9. To what extent would you attribute your answer for question 8 to the ongoing COVID-19 pandemic? Significant extent  Partial extent  No extent  Don't know/Not sure
10. In the last year, has your work had a positive or negative impact on your mental health and wellbeing? Positive  Negative  Neither positive or negative  Don't know/Not sure  Not applicable
11. Which of the following (if any) would you say have had a negative impact on your mental health and wellbeing?  
Financial problems  Finding full-time work  Illness  Inadequate staffing  Issues linked to studying/training  Lack of appropriate remuneration from employer  Lack of colleague or senior support on the job  Lack of work-life balance  Long working hours  Stress at work  Stress outside of work
12. On a day-to-day basis, which of the following statements about work enjoyment best describes you? I really enjoy my work  I enjoy my work  I am indifferent about my work  I don't enjoy my work  I really don't enjoy my work  Not applicable



13. In the last year, have you had to take time off work (for sick leave) due to the impact of your work on your mental health and wellbeing? Yes - a day to a few days in total [ ] Yes - a week or more in total [ ] Yes - a month or more in total [ ] I have wanted to but have not felt able to [ ] No [ ] Don't know/Not sure [ ] Not applicable [ ]

14. In the last year, at any point, has the impact of your work on your mental health and wellbeing caused you to consider leaving your job or the pharmacy profession?

Yes, I have considered leaving my job [ ] Yes, I have considered leaving the pharmacy profession [ ] No, I have not considered this [ ] Don't know/Not sure [ ] Not applicable [ ]

15. In the last year, how frequently do you worry (if at all) about the quality of service you offer your service users, due to the impact of work on your mental health and wellbeing?

Always [ ] Often [ ] Sometimes [ ] Occasionally [ ] Never [ ] Not applicable [ ]

16. In the last year, how frequently do you worry (if at all) about making mistakes in your work due to the impact of work on your mental health and wellbeing?

Always [ ] Often [ ] Sometimes [ ] Occasionally [ ] Never [ ] Not applicable [ ]

### SECTION 3

#### Oldenburg Burnout Inventory

Item	Strongly agree	Agree	Disagree	Strongly disagree
17. I always find new and interesting aspects in my work (D)	1	2	3	4
18. There are days when I feel tired before I arrive at work (E.R)	1	2	3	4
19. It happens more and more often that I talk about my work in a negative way (D.R)	1	2	3	4
20. After work I tend to need more time than in the past in order to relax and feel better (E.R)	1	2	3	4
21. I can tolerate the pressure of my work very well (E)	1	2	3	4
22. Lately I tend to think less at work and do my job almost mechanically (D.R)	1	2	3	4
23. I find my work to be a positive challenge (D)	1	2	3	4
24. During my work I often feel emotionally drained (E.R)	1	2	3	4
25. Over time I can become disconnected from my type of work (D.R)	1	2	3	4
26. After working I have enough energy for my leisure activities (E)	1	2	3	4
27. Sometimes I feel sickened by my work tasks (D.R)	1	2	3	4
28. After my work I usually feel worn out and weary (E.R)	1	2	3	4
29. This is the only type of work that I can imagine myself doing (D)	1	2	3	4
30. Usually, I can manage the amount of my work well (E)	1	2	3	4
31. I feel more and more engaged with my work (D)	1	2	3	4
32. When I work I usually feel energized (E)	1	2	3	4

Note: Disengagement items are 17, 19(R), 22(R), 23, 25(R), 27(R), 29, 31.

Exhaustion items are 18(R), 20(R), 21, 24(R), 26, 28(R), 30, 32.

(R) means reversed item when the scores should be such that higher scores indicate more burnout.

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