



Psychological Need Frustration and Migration Intentions among Healthcare Workers in a Tertiary Hospital in North-Central Nigeria: A Cross-Sectional Study

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Abstract

Background: Migration of healthcare professionals from low- and middle-income countries poses major challenges to health system performance. Workplace frustration, arising from structural and psychological constraints, may contribute to migration intention among healthcare workers. This study assessed the prevalence of workplace frustration and its association with migration intention among healthcare workers in a tertiary hospital in North-Central Nigeria. **Methods:** A cross-sectional analytical study was conducted among 385 clinical staff selected using proportional allocation and purposive recruitment. Data were collected using a structured self-administered questionnaire,

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including the Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS). Descriptive statistics, Pearson correlation, one-way ANOVA, and multivariable logistic regression were used for analysis. Statistical significance was set at $p < 0.05$. **Results:** Overall, 280 respondents (72.7%) reported workplace frustration, while 313 (81.3%) expressed migration intention. Mean frustration scores varied across professional cadres, with doctors recording the highest mean score (3.43 ± 1.06), although the differences were not statistically significant, $F(4, 380) = 2.04$, $p = 0.088$. Major sources of frustration included lack of equipment/tools (88.0%), excess workload (85.0%), and poor salary (84.0%). Workplace frustration correlated positively with migration intention across all cadres ($r = 0.43 - 0.67$, $p < 0.001$). In multivariable logistic regression, frustration independently predicted migration intention (aOR = 1.28, 95% CI: 1.16 - 1.41, $p < 0.001$). **Conclusion:** Workplace frustration is significantly associated with migration intention among healthcare workers. Addressing structural and psychosocial workplace challenges may contribute to improved workforce retention in resource-constrained settings.

Subject Areas

Occupational Health

Keywords

Workplace Frustration, Migration Intention, Healthcare Professionals, Nigeria, Psychological Needs, Brain Drain

1. Introduction

1.1. Background

The Migration of healthcare professionals from low- and middle-income countries (LMICs) to high-income settings has become a major global health workforce challenge. Commonly referred to as “brain drain”, this phenomenon involves the emigration of skilled professionals in search of improved working conditions, better remuneration, enhanced career opportunities, and more stable sociopolitical environments [1]. The impact is particularly pronounced in sub-Saharan Africa, where existing shortages of trained healthcare personnel are compounded by continued workforce outflow [2] [3].

Healthcare worker migration is driven by a complex interaction of push and pull factors. Push factors include poor remuneration, inadequate working conditions, limited opportunities for career advancement, insufficient equipment, and weak health system infrastructure [4]-[6]. Security concerns and instability may further intensify intentions to leave [7]. In contrast, pull factors in high-income countries include better salaries, structured training pathways, improved working environments, and access to advanced technologies [5] [6]. Research conducted in low resource settings universally identified multiple factors influencing migra-

tion, including inadequate remuneration, insecurity, poor working environments, and lack of diagnostic facilities [2] [8]-[12]. Other studies have also highlighted the role of non-functional equipment and poor working conditions in shaping healthcare workers' decisions to seek employment abroad [13].

However, there remains debate regarding which categories of healthcare workers are most likely to migrate. Some studies have reported that younger nurses are more likely to migrate [14], whereas others have suggested that physicians exhibit stronger migration tendencies due to higher international demand for their skills [15]. Regardless of professional category, projections suggest that low- and middle-income countries may experience a shortage of approximately 15 million healthcare workers by 2030 [16].

More broadly, sub-Saharan Africa continues to face a marked mismatch between disease burden and available health workforce capacity [17]-[19]. Nigeria is among the countries most affected by healthcare workforce migration. Persistent shortages of healthcare personnel, combined with increasing demand for services, have placed considerable strain on the health system [2] [17] [20] [21]. Understanding the determinants of migration intention is therefore essential for developing effective workforce retention strategies.

While structural and economic factors are well documented, the psychological dimensions of migration intention remain less explored. Self-Determination Theory (SDT) provides a useful framework for understanding how workplace experiences influence motivation and behavior [22]-[25]. SDT posits that the satisfaction of three basic psychological needs, autonomy, competence, and relatedness, is essential for well-being and motivation [22]-[25]. When these needs are persistently frustrated, individuals may experience disengagement, reduced work satisfaction, and increased intention to withdraw from their work environment [26]-[29].

Workplace frustration, defined as a negative emotional state arising from persistent barriers to goal attainment, may therefore represent an important psychological determinant of migration intention [30]. Evidence from healthcare settings suggests that stressful work environments, technological barriers, poor reward systems, and unmet professional expectations are associated with emotional exhaustion, dissatisfaction, and intention to leave [26] [31]-[35]. Although prior studies have linked workplace dissatisfaction to turnover intentions, limited empirical evidence exists on the role of psychological need frustration in shaping migration intention among healthcare workers in Nigeria [18] [36].

This study therefore assessed the prevalence of workplace frustration, identified its major sources, and examined its association with migration intention among healthcare workers in a tertiary hospital in North-Central Nigeria.

1.2. Conceptual Framework

This study is grounded in Self-Determination Theory (SDT), which posits that human motivation and well-being are shaped by the satisfaction or frustration of

three core psychological needs: autonomy, competence, and relatedness [24] [25]. When these needs are persistently frustrated, individuals experience psychological strain, reduced motivation, and are more likely to engage in withdrawal behaviors, such as intention to leave their job or migrate.

Conceptual Model Description

This study is grounded in Self-Determination Theory, which proposes that human motivation and well-being are shaped by the extent to which three basic psychological needs—autonomy, competence, and relatedness are satisfied or frustrated [22]-[25]. Persistent frustration of these needs may be associated with diminished motivation, psychological strain, and withdrawal tendencies [26]-[29].

In this study, workplace conditions such as poor salary, excessive workload, limited equipment, workplace safety concerns, administrative burden, and limited professional development opportunities were conceptualized as key contextual factors [4]-[7] [31]-[35]. Psychological need frustration was treated as a central explanatory variable linking adverse workplace experiences to migration intention. Although the conceptual model suggests a possible mediating role of frustration, formal mediation analysis was not conducted; therefore, findings are interpreted strictly as associations rather than causal pathways.

1.3. General Objective

This study determined the prevalence, and correlation between frustration and migration intention and predictors of migration intention among different cadres of healthcare workers at Federal University Teaching Hospital (FUTH), Lafia.

Specific Objectives

- 1) To determine prevalence of frustration and migration intention
- 2) To identify major workplace sources of frustration
- 3) To assess the association between frustration and migration intention
- 4) To determine independent predictors of migration intention

2. Methodology

2.1. Study Design

This was a cross-sectional analytical study designed to assess the relationship between psychological need frustration and migration intention among healthcare workers [37].

2.2. Study Area

The study was conducted at the Federal University Teaching Hospital (FUTH), Lafia, Nasarawa State, Nigeria. Lafia is the capital city of Nasarawa State, located in North-Central Nigeria, with an estimated population of approximately 1.9 million [38]. The hospital is a tertiary healthcare facility that provides specialized and general medical services and serves as a training center for multiple healthcare professions.

2.3. Study Population

The study population comprised clinical healthcare workers, including doctors, nurses, pharmacists, medical laboratory scientists, and psychologists.

2.3.1. Inclusion Criteria

Participants were eligible if they were full-time staff, had worked for at least six months, and provided informed consent.

2.3.2. Exclusion

Non-clinical staff and locum workers were excluded.

2.4. Sampling Technique and Recruitment

A multistage sampling strategy was employed.

Stage 1: Proportional Allocation

The total sample size was distributed across professional cadres based on their relative proportions within the hospital workforce.

Stage 2: Purposive Recruitment

Eligible participants within each cadre were recruited purposively due to shift schedules and variable staff availability.

Although proportional allocation ensured representation across cadres, purposive recruitment may limit representativeness and introduce selection bias.

2.5. Sample Size

The sample size was calculated using the Cochran formula for cross-sectional studies [37]

$$n = \frac{Z^2 P (1 - P)}{d^2}$$

where

- $Z = 1.96$ (95% confidence level)
- $P = 0.35$ (estimated prevalence from prior studies) [11]
- $d = 0.05$ (margin of error)

The minimum sample size was 350. After adjusting for a 10% non-response rate, the final sample size was **385 participants**.

The number of healthcare workers at FUTH Lafia is 840, including doctors 189, nurses 461, pharmacists 71, 105 laboratory-scientists and Technicians, and clinical psychologists 14.

Using proportional sampling,

- 1) Doctors = $\frac{189}{840} \times \frac{100}{1} = 22.5\%$ of the total sample of 385 = 87
- 2) Pharmacist = $\frac{71}{840} \times \frac{100}{1} = 8.45\%$ of the total sample of 385 = 33
- 3) Nurses = $\frac{461}{840} \times \frac{100}{1} = 54.88\%$ of the total sample of 385 = 211
- 4) Lab Scientist = $\frac{105}{840} \times \frac{100}{1} = 12.5\%$ of the total sample size of 385 = 48

$$5) \text{ Psychologists} = \frac{14}{840} \times \frac{100}{1} = 1.66\% \text{ of the total sample size of } 385 = 6$$

Total number of participants = **385**

2.6. Data Collection Instrument

Data were collected using a structured self-administered questionnaire consisting of:

- Socio-demographic characteristics
- Workplace conditions and sources of frustration
- Migration intention
- Psychological need frustration

2.6.1. Measurement of Psychological Need Frustration

Psychological need frustration was assessed using the **Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS)**. The BPNSFS is a widely used two-dimensional instrument within the framework of Basic Psychological Needs Theory and has demonstrated robust psychometric validity across diverse languages and cultural contexts [39]-[42].

The scale measures three domains:

- Autonomy frustration
- Competence frustration
- Relatedness frustration

Each item was rated on a **5-point Likert scale** (1 = completely false to 5 = completely true).

- Total frustration scores ranged from **12 to 60**
- Higher scores indicated greater psychological need frustration

Interpretation of the BPNSFS Scores

Score Range	Interpretation
1.0 - 2.0	Low frustration
2.1 - 3.0	Moderate frustration
3.1 - 5.0	High frustration

The frustration subscale of the BPNSFS used in this study consisted of 12 items assessing autonomy, competence, and relatedness frustration. Internal consistency in the present sample was acceptable (Cronbach's $\alpha = 0.765$).

2.6.2. Measurement of Migration Intention

Migration intention was assessed using a single-item measure:

“Are you considering leaving Nigeria to work abroad within the next five years?”

Responses were rated on a **5-point Likert scale**.

For analysis:

- continuous scores were used for correlation analysis
- responses were dichotomized into:
 - low intention (1 - 3)
 - high intention (4 - 5)

Although widely used in workforce studies, this single-item measure may not fully capture the multidimensional nature of migration decision-making.

2.7. Data Collection Procedure

Data were collected between May and July 2025 using trained research assistants.

2.8. Data Analysis

Data analysis was performed using the Statistical Package for the Social Sciences (SPSS), version 23. Descriptive statistics were summarized using frequencies, percentages, means, and standard deviations.

Associations between variables were examined using:

- Pearson correlation
- one-way analysis of variance (ANOVA)
- multivariable logistic regression

Categorical variables were entered into regression models using dummy coding, while ordinal variables were treated as continuous predictors.

A complete-case analysis approach was used, with minor variations in sample size due to missing data.

Adjusted odds ratios (aORs) with 95% confidence intervals were reported. Statistical significance was set at $p < 0.05$.

2.9. Ethical Considerations

Ethical approval was obtained from the Research Ethics Committee of FUTH Lafia. Participation was voluntary, and confidentiality was strictly maintained.

3. Results

A total of 385 questionnaires were distributed. Due to complete-case analysis, sample sizes varied slightly across specific analyses depending on missing data (See [Table 1](#) and [Table 2](#)).

Table 1. Socio-Demographic characteristics of respondents.

Variable	Category	n	%
Age (years)	<20	3	0.8
	20 - 30	136	35.3
	30 - 40	163	42.3
	40 - 50	55	14.3
	>50	28	7.3

Continued

Gender	Male	150	39.0
	Female	235	61.0
Religion	Christianity	259	67.3
	Islam	124	32.2
	Others	2	0.5
Marital Status	Married	262	68.1
	Single	116	30.1
	Divorced	1	0.3
	Others	6	1.6
Professional Cadre	Doctors	87	22.6
	Nurses	210	54.5
	Pharmacists	32	8.3
	MLS	50	13.0
	Psychologists	6	1.6
Years of Experience	<1 year	42	10.9
	1 - 5 years	160	41.6
	6 - 10 years	96	24.9
	11 - 20 years	60	15.6
	>20 years	27	7.0
Monthly Salary (₦)	<100,000	37	9.6
	100,000 - 200,000	175	45.5
	200,000 - 300,000	100	26.0
	300,000 - 400,000	25	6.5
	400,000 - 500,000	18	4.7
	>500,000	30	7.8

Note: Exchange rate during study period \approx ₦1500 = \$1.

The majority of respondents were aged 20 - 40 years (77.6%), female (61.0%), and married (68.1%). Nurses constituted the largest professional group (54.5%), followed by doctors (22.6%), medical laboratory scientists (13.0%), pharmacists (8.3%), and psychologists (1.6%). Most respondents had between 1 and 5 years of professional experience (41.6%), and nearly half earned between ₦100,000 and ₦200,000 monthly.

Table 2. Prevalence of workplace frustration.

Variable	n	%
Frustrated	280	72.7
Not frustrated	105	27.3

Overall, 280 respondents (72.7%) reported moderate-to-high levels of workplace frustration.

Table 3. Mean frustration score by professional cadre.

Cadre	Mean (M)	SD
Doctors	3.43	1.06
Pharmacists	3.13	1.45
Nurses	3.08	1.16
MLS	2.93	0.95
Psychologists	2.80	1.53

Note: One-way ANOVA: $F(4, 380) = 2.04$, $p = 0.088$ (not statistically significant).

Mean frustration scores varied across professional groups, with doctors reporting the highest mean score (3.43 ± 1.06), followed by pharmacists (3.13 ± 1.45), nurses (3.08 ± 1.16), medical laboratory scientists (2.93 ± 0.95), and psychologists (2.80 ± 1.53) (See **Table 3**).

However, these differences were not statistically significant ($F(4, 380) = 2.04$, $p = 0.088$), indicating that workplace frustration was broadly experienced across all cadres.

Table 4. Sources of frustration among healthcare workers.

Source	Moderate-High frustration level n (%)
Lack of equipment/tools	339 (88.0)
Excess workload	327 (85.0)
Poor salary	323 (84.0)
Work-life imbalance	296 (77.0)
Workplace safety concerns	285 (74.0)
Limited research opportunities	273 (71.0)
Administrative burden	266 (69.0)
Lack of professional development	262 (68.0)
Lack of recognition	235 (61.0)
Poor interpersonal relationships	185 (48.0)

Note: These findings suggest that both organizational conditions and structural health system deficiencies contribute substantially to healthcare worker frustration.

The most frequently reported sources of moderate-to-high frustration were:

- lack of equipment/tools (88.0%)
- excessive workload (85.0%)
- poor salary (84.0%)

Other commonly reported factors included work-life imbalance (77.0%), work-

place safety concerns (74.0%), limited research opportunities (71.0%), administrative burden (69.0%), and lack of professional development (68.0%) (See **Table 4**).

Table 5. Migration intentions and key motivating factors among healthcare workers.

A. Migration Intention	Frequency (n)	Percentage (%)
Intend to migrate	313	81.3
Do not intend to migrate	72	18.7
B. Reasons for wanting to migrate		
better salary elsewhere	138	88.6
better career advancement opportunities	126	79.7
desire to work in a more developed country	118	74.7
poor working conditions	104	65.8
need for a better work-life balance	96	60.8
issues of insecurity	82	51.9
violence at the workplace	68	43.0

A total of 313 respondents (81.3%) reported intention to migrate (See **Table 5**).

Among those expressing migration intention (n = 313), the most commonly cited reasons were:

- better salary elsewhere (88.6%)
- improved career advancement opportunities (79.7%)
- desire to work in a more developed setting (74.7%)
- poor working conditions (65.8%)

Table 6. Correlation between workplace frustration and migration intention by professional cadre.

Professional Cadre	Pearson r	p-value
Doctors	0.67	<0.001
Medical Laboratory Scientists	0.58	<0.001
Nurses	0.55	<0.001
Pharmacists	0.53	<0.001
Psychologists	0.43	<0.001

Pearson correlation analysis demonstrated statistically significant positive associations between workplace frustration and migration intention across all professional cadres (p < 0.001).

The strength of association ranged from moderate to strong, with the highest correlation observed among doctors (r = 0.67) and the lowest among psychologists (r = 0.43) (See **Table 6**).

Findings for smaller subgroups, particularly psychologists ($n = 6$), should be interpreted with caution due to limited statistical power and potential instability of estimates

These findings suggest that increasing levels of workplace frustration is an important consideration in migration intention among all healthcare worker groups (See **Table 7**).

Table 7. Multivariable logistic regression predicting migration intention.

Predictor	aOR	95% CI	p-value
Age	1.07	1.02 - 1.12	0.010
Salary	1.06	1.01 - 1.10	0.022
Gender	1.05	0.97 - 1.13	0.221
Cadre	2.21	1.15 - 4.03	0.017
Workload	1.02	1.01 - 1.04	0.005
Equipment	1.04	1.01 - 1.08	0.030
Training	1.02	0.98 - 1.07	0.430
Frustration	1.28	1.16 - 1.41	<0.001

Model: Pseudo $R^2 = 0.114$, $p < 0.001$.

Multivariable logistic regression analysis identified several independent predictors of migration intention.

Workplace frustration was a significant predictor, with higher frustration scores associated with increased likelihood of intending to migrate (aOR = 1.28, 95% CI: 1.16 - 1.41, $p < 0.001$).

Other significant predictors included:

- age (aOR = 1.07, $p = 0.010$)
- salary (aOR = 1.06, $p = 0.022$)
- workload (aOR = 1.02, $p = 0.005$)
- equipment availability (aOR = 1.04, $p = 0.030$)

Professional cadre was also significantly associated with migration intention ($p = 0.017$), although interpretation depends on the reference category used in the regression model.

Gender and training opportunities were not statistically significant predictors.

The model demonstrated modest explanatory power (Pseudo $R^2 = 0.114$), indicating that additional unmeasured factors contribute to migration intention.

4. Discussion

This study (**Table 2** and **Table 5**) found a high prevalence of both workplace frustration and migration intention among healthcare workers in a tertiary hospital in North-Central Nigeria. These findings add to growing evidence that migration intentions in LMICs are influenced not only by structural and economic condi-

tions, but also by adverse workplace experiences and unmet psychological needs [1] [2] [4] [18].

The proportion of respondents expressing migration intention (81.3%) (**Table 5**) was notably high. Although intention does not necessarily translate into actual migration, such a high proportion suggests a substantial risk of future workforce attrition if underlying conditions remain unchanged. This finding is consistent with previous studies in Nigeria and other African settings, where poor remuneration, weak infrastructure, insecurity, and limited opportunities for career progression have been identified as major drivers of migration intention among healthcare workers [2] [9]-[15] [18] [21]. Given the existing shortages in the health workforce, further losses through migration may deepen service delivery gaps and weaken already strained health systems [3] [16]-[18].

Workplace frustration (**Table 2**) was also highly prevalent, affecting nearly three-quarters of respondents. This is consistent with prior research showing that healthcare workers in resource-constrained settings often experience frustration due to inadequate institutional support, poor infrastructure, technology-related barriers, insufficient staffing, and limited access to essential tools for effective practice [26] [31]-[33]. Within the framework of SDT, such conditions may frustrate the needs for autonomy, competence, and relatedness, thereby undermining motivation and increasing psychological strain [22] [28] [31]-[32].

Although mean frustration scores (**Table 3**) varied descriptively across professional cadres, the between-group difference was not statistically significant. This suggests that frustration may be a broadly shared occupational experience across cadres in this setting rather than a phenomenon restricted to one professional group. Such a pattern is plausible in under-resourced health systems where systemic deficiencies, such as poor equipment availability, excessive workload, weak organizational support, and limited career opportunities, affect multiple professional groups simultaneously [4]-[6] [31]-[35]. Nevertheless, doctors recorded the highest mean frustration score (**Table 3**), which may reflect greater clinical responsibility, heavier decision-making burdens, and stronger awareness of international opportunities [11] [12] [21].

The specific sources of frustration identified (**Table 4**) in this study further support the structural nature of the problem. Lack of equipment and tools, excessive workload, and poor salary were the most frequently reported stressors. This is consistent with earlier evidence identifying poor working conditions, inadequate resources, and weak reward systems as key drivers of dissatisfaction, disengagement, and workforce attrition among healthcare professionals in low-resource settings [5] [13] [26] [31] [36]. Workplace safety concerns, administrative burden, and limited professional development opportunities were also prominent, indicating that frustration in this context arises from both material and organizational constraints.

A major finding of this study is the significant positive association between workplace frustration and migration intention across all professional cadres (**Ta-**

ble 6). The magnitude of this association ranged from moderate to strong, with the strongest correlation observed among doctors. This is consistent with previous evidence showing that frustration, reward imbalance, and unmet workplace expectations are associated with stronger intention to leave one's job or profession [26] [30] [34] [35]. While much of the existing literature focuses on turnover intention rather than international migration, the present findings suggest that similar psychosocial mechanisms may contribute to migration intention as well [18] [36].

The multivariable analysis strengthens this interpretation (**Table 7**). Workplace frustration remained independently associated with migration intention after adjustment for demographic and workplace factors. This aligns with studies suggesting that adverse work environments and unmet motivational needs function as important push factors in workforce retention and exit decisions [4] [26] [34]-[36]. It also accords with SDT, which posits that persistent frustration of basic psychological needs may be associated with disengagement and withdrawal behaviors, including efforts to seek more supportive environments [22]-[25]. Other significant predictors included age, salary, workload, and equipment availability, emphasizing the multifactorial nature of migration intention. The association with workload is in line with prior studies linking occupational overload and work-related strain to dissatisfaction and reduced retention [31]-[33]. Similarly, the significance of equipment availability supports the argument that healthcare workers may be more likely to consider migration when they are unable to perform their duties effectively because of resource constraints [18] [21]. The salary finding is also unsurprising, given that remuneration remains one of the most frequently cited push factors in the migration literature [1] [2] [4] [9]-[13]. However, as other studies suggest, financial dissatisfaction likely operates alongside broader concerns such as professional recognition, work environment quality, and career growth rather than in isolation [4] [18].

The modest explanatory power of the regression model (**Table 7**), indicates that migration intention cannot be explained by workplace frustration alone. This is consistent with broader migration literature, which conceptualizes migration decisions as shaped by a complex interplay of personal aspirations, family considerations, security concerns, labor market opportunities, national conditions, and international demand for skilled professionals [5]-[7] [14] [18]. Workplace frustration is therefore best understood as one important component of a broader migration decision-making process.

Taken together, these findings highlight the need for comprehensive health workforce retention strategies in Nigeria. Improving infrastructure, reducing excessive workload, strengthening professional support systems, and expanding opportunities for career development may help reduce frustration and improve retention [4] [17] [18] [36]. However, because this was a cross-sectional study, causality cannot be established. It is possible that individuals with pre-existing migration intentions may perceive workplace conditions more negatively, thereby re-

porting higher frustration. Longitudinal and multi-center studies are needed to clarify the temporal direction and broader generalizability of these associations.

4.1. Strengths and Limitations

4.1.1. Strengths

This study has several strengths. It assessed both psychological need frustration and migration intention, thereby providing a broader understanding of workforce migration beyond purely economic explanations. The inclusion of multiple professional cadres improved the relevance of the findings across different healthcare roles. Use of the BPNSFS strengthened conceptual measurement of frustration within an established theoretical framework. In addition, the relatively large sample size and use of multivariable analysis improved analytical robustness.

4.1.2. Limitations

However, several limitations should be considered. First, the cross-sectional design precludes causal inference. Second, the study was conducted in a single tertiary hospital, which may limit generalizability to other settings. Third, purposive recruitment may have introduced selection bias. Fourth, migration intention was assessed using a single-item measure, which may not fully capture the complexity of migration decision-making. Fifth, both exposure and outcome variables were self-reported at one point in time, raising the possibility of common method bias. Finally, unmeasured influences such as family obligations, prior migration planning, and broader socioeconomic conditions may also have affected migration intentions.

5. Conclusion

This study demonstrates a high prevalence of workplace frustration and migration intention among healthcare workers in a tertiary hospital in North-Central Nigeria. Workplace frustration was significantly associated with migration intention, suggesting that adverse workplace experiences may contribute to healthcare workers' consideration of international migration. Addressing structural deficiencies, improving working conditions, and supporting psychological well-being may be important components of workforce retention strategies in resource-constrained settings. Further longitudinal and multi-center studies are needed to clarify causal pathways and inform policy interventions.

6. Policy Implications and Recommendations

The findings of this study have important implications for health workforce policy in Nigeria and similar resource-constrained settings. First, the prominence of inadequate equipment, excessive workload, and poor remuneration highlights the need for stronger investment in health system infrastructure and workforce support. Second, reducing workload through recruitment, improved staffing distribution, and supportive supervision may lessen occupational strain and improve job satisfaction. Third, structured career development pathways, including oppor-

tunities for training, specialization, and research engagement, may help reduce push factors for migration. Fourth, while financial incentives remain important, retention strategies should also address psychosocial workplace needs, including recognition, professional support, and work-life balance. Finally, because many respondents were early-career professionals, targeted retention strategies for younger healthcare workers may be especially important.

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Data Statement

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Conflicts of Interest

The authors declare no conflicts of interest.

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