

Policy Awareness: Communication Channels and Knowledge Gaps in Nigeria's 2024 Health Workforce Migration Policy among Public Health Employees

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Abstract

Original Research Article

Background: Announcing a national workforce policy does not establish whether employees recognize its provisions or understand their institutional relevance. This study described recognition, reported information sources, familiarity and policy-statement responses among employees participating in an NCDC Headquarters survey.

Methods: A cross-sectional online questionnaire was completed by 400 volunteers recruited through internal WhatsApp communication channels. Participants answered a policy-awareness item; the 191 who reported awareness also answered communication, familiarity and policy-knowledge items. Descriptive frequencies and exploratory comparisons across recorded workforce categories were evaluated using the survey data.

Results: Awareness was reported by 191/400 respondents (47.8%). Among those aware, the most frequently named primary source was colleagues or informal discussion (74/191; 38.7%), followed by social media (44/191; 23.0%); official NCDC communication was named by 14 (7.3%). Only 74 aware respondents (38.7%) agreed that they were familiar with key provisions, while 94 (49.2%) agreed that they understood the policy's application to NCDC staff. Answer patterns across five policy statements included substantial "do not know" responses (31.4%-58.1%). None of six omnibus subgroup awareness comparisons met the conventional 0.05 significance threshold.

Conclusions: The responses indicate a separation between recognition, recalled dissemination channel and understanding. Findings describe volunteers rather than the NCDC workforce as a whole; they support targeted evaluation of institutional communication without establishing the effectiveness of any specific channel.

Keywords: health workforce migration, health policy, policy dissemination, information channels, implementation, public health, Nigeria, convenience sampling.

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1. Introduction

1.1 Policy context and the information challenge

International mobility of health workers creates intersecting challenges for the health systems that educate, employ and retain skilled professionals. The

movement of clinicians and public-health personnel is shaped by employment conditions, professional progression, labor-market demand, security and opportunities for further training. Reviews of migration drivers caution against treating departures as the consequence of a single salary or policy factor.



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Nigerian work on migration decisions similarly documents a combination of professional and institutional considerations, making workforce responses to national measures potentially heterogeneous rather than uniform [1-4]. Nigeria approved a National Policy on Health Workforce Migration in 2024. The Federal Ministry of Health and Social Welfare policy and its supporting public communication address domestic retention, management of health-worker mobility, ethical recruitment and cooperation among relevant actors [5,6]. Such policy goals are not identical to the practical knowledge employees need. A member of a surveillance unit, for example, might ask how national plans affect specialist training or deployment, whereas human-resource personnel may focus on recruitment procedures. These examples illustrate why translating national documents into understandable workplace information is a distinct implementation task.

Workforce policy communication is also situated within a politically sensitive environment. Ethical mobility and worker rights coexist with legitimate concerns about continuity of health services and the loss of experienced personnel. International guidance on bilateral health-worker mobility emphasizes mutual benefits and safeguards [8]. A successful institutional explanation must therefore communicate both policy intent and its qualifications. Describing the policy as an absolute ban or as an unconditional financial guarantee would be a potentially consequential simplification, independent of whether employees support the wider reform. Policy announcements and public commentary can create initial recognition without delivering detailed comprehension. Research and analysis on workforce governance in Nigeria emphasize that policy legitimacy and expected effects depend on implementation conditions, not on enactment alone [3,7,19]. A staff member may be aware that a policy has been announced yet have little information about its scope, resources, timelines, eligibility and accountability. Therefore, awareness should be defined narrowly, as exposure sufficient to recognize the policy, rather than implicitly equated with verified knowledge or

support.

1.2 Communication pathways and distinct types of information

Formal and informal communication routes have different capacities and limitations. Circulars and institutional briefings can provide an authorized record and a channel for clarification, but only if they are timely, accessible and presented in relevant language. Colleague networks and social-media messages can circulate rapidly and reach employees who have not read the original announcement. Research on health-worker social networks in Nigeria supports attention to professional connections, although it does not establish how the migration policy itself was disseminated inside NCDC [9]. Public-sector transparency and reliable institutional communication are also treated as components of a broader trust-supporting policy environment in comparative OECD reporting [10]. The term "information source" requires caution in single-choice surveys. A respondent who recalls first hearing about the policy from a colleague may later have read ministry communications, and someone who reports a ministry as the primary source may also use social media. A survey asking for the main source does not reconstruct all contacts, evaluate source accuracy or measure organizational circulation intensity. Consequently, the distributions in this analysis should be interpreted as recalled primary pathways among a defined subgroup of respondents, not as an audit of all institutional messages or a ranking of objectively effective channels.

Four information states need to be distinguished. First is recognition of the policy title or its existence. Second is self-reported familiarity with selected provisions. Third is agreement with evaluative statements about the policy, including welfare, retention and ethical recruitment. Fourth is the response given to a specific proposition requiring a true, false or "do not know" judgment. These categories can vary independently: high optimism about a retention policy need not imply correct knowledge of its provisions, and high familiarity can

coexist with uncertainty about a specialized administrative requirement. Health policy evaluation is often weakened when such distinct indicators are collapsed into a single score without a validated measurement model [16]. The present dataset was designed with a skip instruction that directs employees who had not heard of the policy past the follow-up items. That design supplies useful conditional responses among those aware, but it cannot be used to produce a whole-sample policy-knowledge score without assigning answers to participants who were never asked the questions. Respecting the skip pattern is central to truthful interpretation.

1.3 Institutional setting and research contribution

The Nigeria Centre for Disease Control and Prevention (NCDC) provides a relevant multidisciplinary organizational context. Its work involves surveillance, laboratory services, risk communication, information management and administrative support. The agency strategy establishes an institutional environment in which workforce capability and organizational communication can affect implementation of broader public-health responsibilities [11]. The present study examines employees in one headquarters setting, not all Nigerian health facilities and not the national workforce.

The study distinguishes reported policy recognition from familiarity with specific provisions and perceived institutional relevance. The analyses examine recalled information pathways, responses to policy statements and the distribution of awareness across recorded employee categories. The study is descriptive and cross-sectional; it does not establish campaign effectiveness, workforce-retention outcomes or national awareness prevalence.

We addressed four questions: What proportion of surveyed employees reported having heard or read about the 2024 policy? Which primary information pathways did aware respondents recall? How did familiarity, perceived implications and true/false/uncertain responses vary within that aware

subgroup? Finally, were there statistically detectable differences in awareness across observed demographic and occupational categories? The questionnaire responses were analyzed descriptively, with exploratory comparisons between recorded workforce categories.

2. Materials and Methods

2.1 Study design, population and recruitment

An institution-based cross-sectional survey was conducted among personnel at NCDC Headquarters in Abuja. The intended eligible group included permanent, contract and seconded full-time staff with at least six months of service who consented to participate. The questionnaire was administered online and its invitation link was distributed via internal NCDC WhatsApp communication channels. There was no complete enumerated sampling frame, allocation by known workforce strata or random selection of invitees. Participation was voluntary, and the quantitative recruitment mechanism was non-probability convenience sampling with self-selection. Sample-size planning used an approximate workforce figure and a nominal benchmark of 384 respondents, with a recruitment target of 422. The final analytic sample contained 400 completed questionnaires. Because neither the number of invited employees nor their selection probabilities were documented, 400/422 reflects attainment of a recruitment target rather than a survey response rate. A relatively large volunteer sample does not establish workforce representativeness [12-15].

Recruitment and eligibility records were incomplete for some categories. Specifically, employment type "Other" lacked retained free-text descriptions, and the broad category "Less than 1 year" did not retain the exact number of months of service. Exact six-month eligibility could not therefore be independently established for every such respondent. The analysis is explicitly a description of the retained, consenting responses. No post hoc reclassification or invented eligibility detail was used to claim a probability sample.

2.2 Questionnaire architecture and variables

The questionnaire included a demographic/occupational section and a policy-awareness module. The main policy item (B1) asked whether the participant had heard or read about the 2024 Health Workforce Migration Policy, recorded as yes or no. Participants answering yes were instructed to proceed to B2 (single primary information source), B3 (six five-point agreement statements) and B4 (five statements answered true, false or do not know). Those answering no skipped the follow-up module. Because 191 participants answered yes, all B2-B4 proportions in this article use $n=191$ unless clearly indicated otherwise.

The six B3 statements covered reported familiarity with the policy, perceptions of its relevance to reasons for migration, perceived retention incentives, ethical-recruitment provisions, government commitment to welfare and understanding of its application to NCDC staff. These are not interchangeable objective knowledge tests. Agreement may reflect subjective confidence, a judgment about potential outcomes, or a favorable assessment of the proposal. The five B4 items assessed responses to discrete policy propositions, with "do not know" preserved as a valid response category. No prospectively validated scoring key was used to combine B4 responses into an objective knowledge scale.

The study instrument was described as having undergone a small readability/feasibility pretest involving approximately 10-15 people in a comparable public-health environment. This pretest provides limited evidence of practical administration, not full psychometric validation or proof that the statements had identical meaning across cadres. Scale-development guidance supports separating content coverage, reliability and validity when making measurement claims [16].

2.3 Data cleaning and statistical procedures

Data cleaning and analysis were undertaken using IBM SPSS Statistics 26. Checks addressed unique respondent identifiers, categorical response

frequencies and the questionnaire skip pattern. All 400 analyzed respondents provided consent. The 209 participants reporting no policy awareness were not asked B2-B4; their unobserved follow-up answers were treated as structural missingness rather than imputed, scored incorrect or included in the aware-subgroup denominators. Analyses reported numbers and within-denominator percentages. The proportion aware was accompanied by a nominal Wilson 95% interval. Pearson chi-square comparisons of awareness across age, gender, qualification, professional cadre, service duration and employment type were summarized with omnibus p-values and Cramer V effect sizes. Because some categories had small cell sizes, these tests are exploratory and should not be interpreted as definitive absence or presence of workforce disparities. No multivariable awareness model was estimated; reported associations are exploratory, unadjusted subgroup comparisons. Nominal p-values were obtained using conventional statistical tests and are reported with their sampling limitations. They do not quantify unknown selection or coverage error. With an open invitation and voluntary response, intervals and significance tests depend on statistical modeling assumptions and cannot be read as design-based confidence about the full NCDC workforce [12-14,17]. Descriptive contrasts were prioritized over a mechanical significance/non-significance dichotomy.

2.4 Reporting and ethical considerations

Reporting follows core STROBE principles for observational research, with explicit identification of the study design, setting, recruitment mechanism, variables, eligible denominators, results and limitations [17]. The present analyses focus on policy recognition, information channels and responses to policy-related statements.

Institutional permission and ethical review formed part of the survey procedures. All analyzed respondents provided informed consent, and the questionnaire did not collect names or staff identification numbers. [Insert verified ethics committee name, approval number and date, and

exact survey fieldwork dates before submission.]

3. Results

3.1 Characteristics of the respondents and reported awareness

The analytic data comprised 400 respondents with affirmative consent and unique identifiers. The

largest age group was 40-49 years (214; 53.5%). Men accounted for 212 (53.0%) and respondents reporting a master's qualification accounted for 213 (53.3%). Administration/human-resources was the largest occupational group (140; 35.0%), while 243 (60.8%) reported permanent employment. These percentages describe the achieved volunteer sample, not the composition of all headquarters employees (Table 1).

Table 1. Demographic and occupational profile of the analyzed respondents (n = 400)

Characteristic	Category	n	%
Age group (years)	20-29	47	11.8
	30-39	105	26.2
	40-49	214	53.5
	50-59	34	8.5
Gender	Male	212	53.0
	Female	188	47.0
Educational qualification	Diploma / NCE	33	8.3
	Bachelor's degree	117	29.3
	Master's degree	213	53.3
	Doctorate (PhD)	12	3.0
	Other	25	6.3
Professional cadre	Epidemiology / Surveillance	77	19.3
	Administration / Human Resources	140	35.0
	Laboratory Scientist / Technologist	47	11.8

Characteristic	Category	n	%
	Public Health Officer / Programme Manager	12	3.0
	Data Manager / Health Informatics	23	5.8
	Communications / Risk Communication	27	6.8
	Other	74	18.5
Years of service at NCDC	Less than 1 year	64	16.0
	1-5 years	111	27.8
	6-10 years	163	40.8
	11-15 years	35	8.8
	More than 15 years	27	6.8
Employment type	Permanent	243	60.8
	Contract	68	17.0
	Secondment	23	5.8
	Other	66	16.5

Counts are based on survey response categories. Percentages may differ by 0.1 percentage point owing to rounding.

Among the 400 respondents, 191 answered yes to having heard or read about the policy, corresponding to 47.8%; 209 answered no (52.2%). The conventional Wilson 95% interval for the observed awareness proportion was 42.9%-52.6%. In this non-probability setting, that interval describes conventional binomial uncertainty under an assumed model and does not cover the unmeasured bias introduced by who did or did not encounter the invitation.

3.2 Reported entry points for policy information

Among the 191 respondents who reported awareness, the most frequently named single primary source was colleagues or informal discussion (74; 38.7%), followed by social media (44; 23.0%). A further 24 (12.6%) selected "Other," 20 (10.5%) selected federal ministry communication, 15 (7.9%) named news media and 14 (7.3%) reported official NCDC communication. These are mutually exclusive responses to the single source item, not records of every source consulted (Table 2 and Figure 1).

Table 2. Primary recalled policy information source among aware respondents (n = 191)

Primary source	n	%
Colleagues / informal discussions	74	38.7
Social media	44	23.0
Other	24	12.6
Federal Ministry of Health communication	20	10.5
News media	15	7.9
Official NCDC communication	14	7.3
Total	191	100.0

A single primary-source category was selected by each aware respondent. The table cannot assess all exposures or the quality of information received.

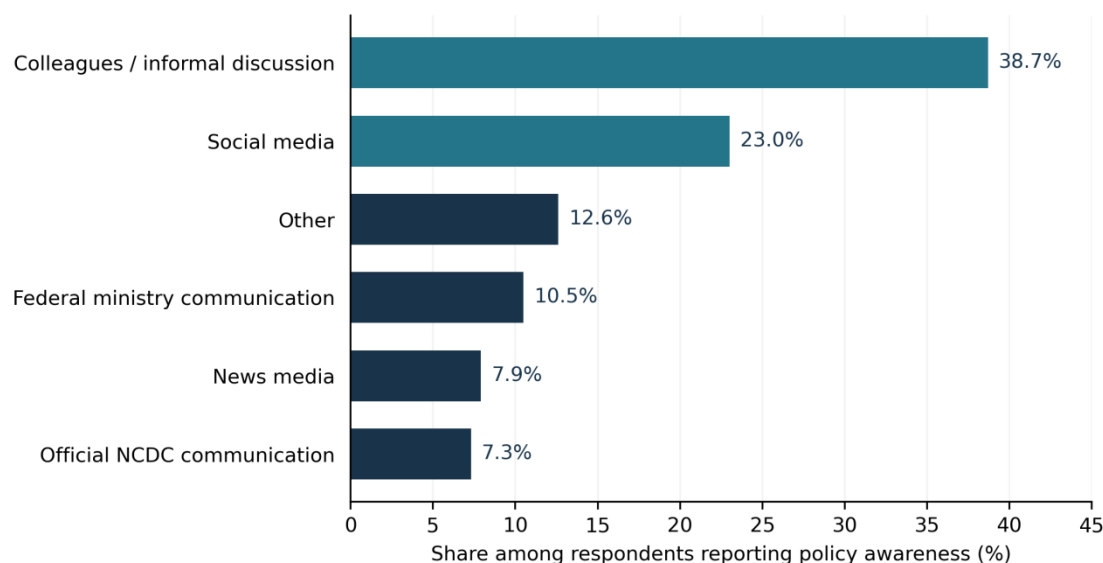


Figure 1. Recalled primary information channels among respondents who reported awareness of the 2024 policy.

All percentages use the aware-subgroup denominator of 191. A channel named as primary is not evidence that other channels were not used.

Taken together, colleagues and social media accounted for 118 of 191 recalled primary sources (61.8%, calculated from the reported counts). Formal

ministry and official NCDC channels accounted for 34 of 191 (17.8%). The remaining 39 responses named news media or another unspecified category. This grouping is descriptive only; it does not show that an institutional briefing was absent or that a particular route transmitted inaccurate material.

3.3 Self-reported familiarity and beliefs about policy content

The B3 items displayed substantial variation (Table

3). Familiarity with key provisions attracted agreement from only 74 respondents (38.7%); a further 79 (41.4%) selected neutral and 38 (19.9%) disagreed. Similarly, 94 (49.2%) agreed that they understood how the policy applied to NCDC staff, with 80 (41.9%) selecting neutral. In contrast, 134 (70.2%) agreed that the policy provided clear retention incentives. This juxtaposition suggests that favorable views of an intervention can be more widespread among aware volunteers than confident understanding of the actual provisions.

Table 3. Agreement with six familiarity/perception items in aware participants (n = 191)

Item	Agree n (%)	Neutral n (%)	Disagree n (%)
Familiar with key provisions	74 (38.7)	79 (41.4)	38 (19.9)
Addresses main reasons for migration	103 (53.9)	88 (46.1)	0 (0.0)
Provides clear retention incentives	134 (70.2)	39 (20.4)	18 (9.4)
Includes ethical-recruitment provisions	111 (58.1)	80 (41.9)	0 (0.0)
Shows commitment to workforce welfare	115 (60.2)	76 (39.8)	0 (0.0)
Understands application to NCDC staff	94 (49.2)	80 (41.9)	17 (8.9)

Five-point responses are summarized as agreement, neutral and disagreement. Displayed categories sum to n=191 for each item; these questions reflect perceptions rather than a validated objective knowledge score.

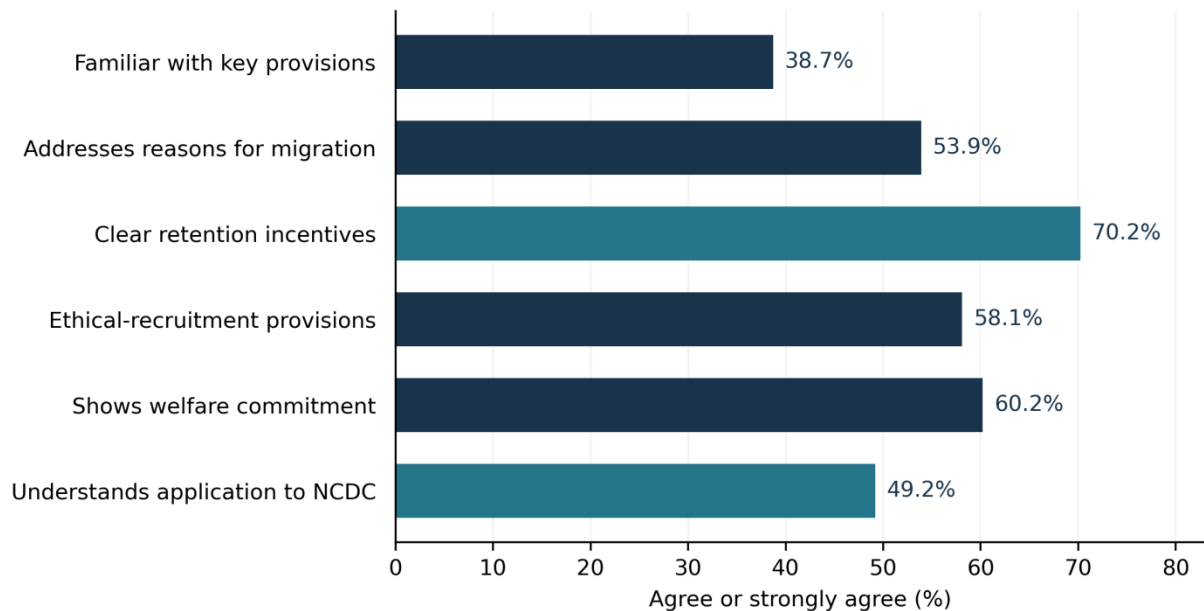


Figure 2. Percentage agreeing with each policy familiarity or perception statement among aware respondents.

Agreement may reflect favorable assessment rather than verified knowledge; the six items measure different content.

The two most direct comprehension-oriented statements deserve separate attention. Familiarity with key provisions was positively endorsed by 38.7%, and understanding of local institutional application by 49.2%. By comparison, statements concerning perceived retention incentives (70.2%), government welfare commitment (60.2%) and ethical recruitment (58.1%) received higher agreement. These results cannot determine which provisions respondents actually read, and the questionnaire did not objectively verify whether such favorable judgments matched implementation

practice.

3.4 Individual policy statements and uncertainty

Five specific propositions used true/false/do-not-know responses (Table 4 and Figure 3). For the proposition that the policy was launched by the federal ministry in 2024, 80 (41.9%) selected true and 111 (58.1%) did not know. The proposition that the policy sought to regulate emigration received a true response from 131 (68.6%), with 60 (31.4%) uncertain. For a statement claiming the policy completely bans Nigerian health workers from employment abroad, 107 (56.0%) selected false, 21 (11.0%) true and 63 (33.0%) did not know.

Table 4. Reported responses to five individual policy propositions among aware respondents (n = 191)

Questionnaire proposition	True n (%)	False n (%)	Don't know n (%)
Policy introduced in 2024 by the federal ministry	80 (41.9)	0 (0.0)	111 (58.1)
Policy aims to regulate emigration of Nigerian health professionals	131 (68.6)	0 (0.0)	60 (31.4)
Policy completely bans Nigerian health workers from overseas employment	21 (11.0)	107 (56.0)	63 (33.0)
Policy establishes retention incentives in critical specialties	108 (56.5)	19 (9.9)	64 (33.5)
Policy requires foreign recruiters to obtain permission before recruitment	41 (21.5)	54 (28.3)	96 (50.3)

B4 responses are reported by item; no validated composite knowledge score was constructed, and respondents without reported awareness were not assigned hypothetical B4 answers. Interpretation of individual statements should be checked against the policy text.

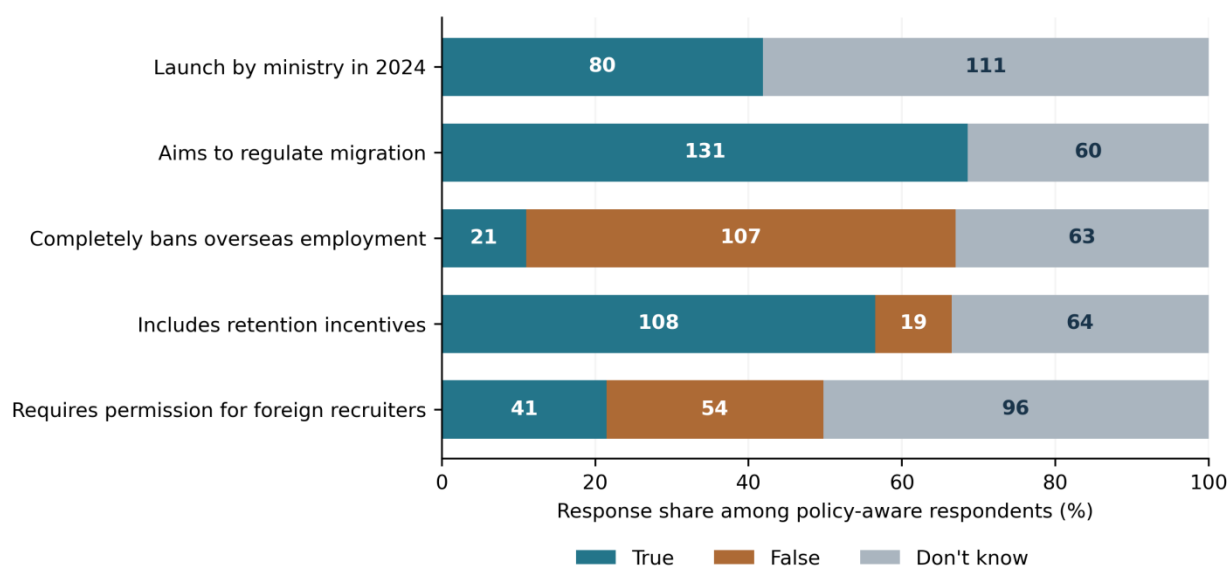


Figure 3. True, false and "do not know" distributions for five policy statements.

Counts are printed within the stacked response segments when space permits. All rows total 191 participants and no imputed responses from the 209 unaware respondents are included.

For the proposition about retention incentives in critical specialties, true was selected by 108 (56.5%), false by 19 (9.9%) and do not know by 64 (33.5%). For a proposed authorization requirement affecting foreign recruiters, the responses were more dispersed: 41 (21.5%) true, 54 (28.3%) false and 96 (50.3%) do not know. The substantial uncertain shares identify topics for clearer explanation, not evidence that any individual employee lacks professional competence.

The range of do-not-know responses across the five questions was 31.4%-58.1%. Because only people already reporting awareness were asked these follow-up items, the observed uncertainty cannot be applied mechanically to all 400 respondents. An

employee answering no to B1 was not shown to have chosen an incorrect answer to B4; the survey design did not ask the follow-up questions. A whole-sample numerator obtained by treating those 209 records as incorrect would therefore be artificial.

3.5 Staff-group patterns and exploratory comparisons

Awareness varied descriptively across groups, but no omnibus association test for the six recorded characteristics had p below 0.05. Age had $p=0.230$, gender $p=0.396$, education $p=0.649$, cadre $p=0.432$, years of service $p=0.102$ and employment type $p=0.499$. Reported Cramer V measures were modest, ranging from 0.042 (gender) to 0.139 (service duration). None of these comparisons proves equivalence among groups, and small categories limit the resolution of the analysis (Table 5).

Table 5. Exploratory omnibus awareness comparisons by respondent characteristic

Characteristic	Chi-square p	Cramer V
Age group	0.230	0.104
Gender	0.396	0.042
Education	0.649	0.079
Professional cadre	0.432	0.122
Years of service	0.102	0.139
Employment type	0.499	0.077

Reported p -values are exploratory model-based outputs, not design-based estimates for the NCDC

workforce. Recruitment was voluntary and no multiple-comparison adjustment was applied.

Within occupational cadres, the recorded awareness proportion ranged from 37.8% in the nonspecific "Other" group to 59.3% among communications/risk-communication staff. The latter comprised only 27 respondents, and the public-health-officer/programme-manager group only 12.

Variability in such small samples should not be interpreted as ranking institutional communication performance. Figure 4 plots observed proportions together with the number of respondents in each cadre.

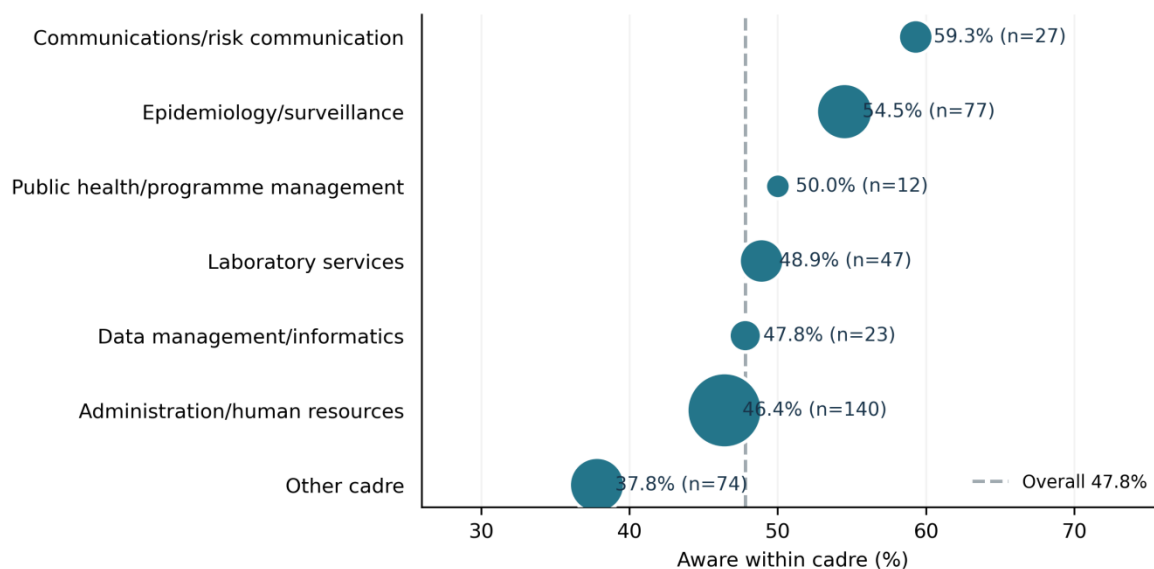


Figure 4. Awareness proportions across occupational categories of the volunteer sample.

Bubble area increases with the reported category sample size. Dashed line marks the overall awareness proportion (47.8%); the omnibus cadre test was $p=0.432$.

Table 6. Detailed observed policy awareness by respondent category ($n = 400$)

Characteristic	Category	Aware n (%)	Not aware n (%)
Age group	20–29	25 (53.2%)	22 (46.8%)
	30–39	57 (54.3%)	48 (45.7%)
	40–49	96 (44.9%)	118 (55.1%)
	50–59	13 (38.2%)	21 (61.8%)

Characteristic	Category	Aware n (%)	Not aware n (%)
Gender	Female	94 (50.0%)	94 (50.0%)
	Male	97 (45.8%)	115 (54.2%)
Education	Bachelor's Degree	53 (45.3%)	64 (54.7%)
	Diploma / NCE	14 (42.4%)	19 (57.6%)
	Doctorate (PhD)	8 (66.7%)	4 (33.3%)
	Master's Degree	104 (48.8%)	109 (51.2%)
	Other (please specify):	12 (48.0%)	13 (52.0%)
Professional cadre	Administrative / Human Resources Staff	65 (46.4%)	75 (53.6%)
	Communications / Risk Communication Staff	16 (59.3%)	11 (40.7%)
	Data Manager / Health Informatics Specialist	11 (47.8%)	12 (52.2%)
	Epidemiologist / Surveillance Officer	42 (54.5%)	35 (45.5%)
	Laboratory Scientist / Technologist	23 (48.9%)	24 (51.1%)
	Other (please specify):	28 (37.8%)	46 (62.2%)
Years of service	Public Health Officer / Programme Manager	6 (50.0%)	6 (50.0%)
	11–15 years	20 (57.1%)	15 (42.9%)
	1–5 years	43 (38.7%)	68 (61.3%)
	6–10 years	85 (52.1%)	78 (47.9%)
	Less than 1 year	33 (51.6%)	31 (48.4%)
	More than 15 years	10 (37.0%)	17 (63.0%)

Characteristic	Category	Aware n (%)	Not aware n (%)
Employment type	Contract	35 (51.5%)	33 (48.5%)
	Other (please specify):	26 (39.4%)	40 (60.6%)
	Permanent	119 (49.0%)	124 (51.0%)
	Secondment	11 (47.8%)	12 (52.2%)

Percentages within each recorded subgroup sum to approximately 100%. Some small categories have low numbers and unknown population coverage.

Patterns across years of service also warrant descriptive, not causal, interpretation. Awareness was 57.1% among respondents reporting 11-15 years at NCDC (20/35), 52.1% among those with 6-10 years (85/163), 38.7% among those with 1-5 years (43/111) and 37.0% among those with more than 15 years (10/27). With a p-value of 0.102 for the overall tenure comparison and uncertainty in the eligibility classification of the shortest-tenure group, the reported heterogeneity should motivate targeted follow-up rather than a claim of a robust tenure gradient.

4. Discussion

4.1 Recognition, comprehension and institutional reach

The first substantive observation is that 191 of 400 survey respondents recognized the policy, but a smaller subset of those aware endorsed direct familiarity with its key provisions. This is an empirical distinction between noticing a national initiative and understanding it. Implementation depends on what the relevant actors need to do, which documents they can consult, and which institution can answer operational questions. A single recognition question therefore supplies an initial monitoring indicator, not a complete picture of

readiness for policy implementation. The contrast between optimism about retention incentives and more limited self-assessed understanding is especially informative. Agreement that a policy offers clear incentives (70.2%) is a belief about possible benefits. Agreement that one understands the provisions (38.7%-49.2% on the two closer comprehension items) is a different claim. Although the data cannot determine who holds each combination without respondent-level joint tabulation, the group-level gap discourages treating favorable attitudes as evidence of policy literacy. It also discourages the opposite error of interpreting uncertainty as opposition.

This distinction has parallels in broader health-workforce literature, where formal policy commitments coexist with complex implementation environments [1,3,18,19]. It does not imply that the national policy itself is ineffective. No information was gathered on policy implementation milestones, budget execution, subsequent staffing outcomes or administrative compliance. The study concerns the participants' reported knowledge at one point in time; effectiveness of a national initiative would require different measurements and a different design.

4.2 What the communication channels do and do not indicate

Informal professional interactions were the leading recalled source, followed by social media. These

channels may be attractive because they are rapid and allow discussion of personally relevant questions. Equally, they can transmit incomplete paraphrases when details are uncertain. The data cannot test either mechanism, because channel content, frequency, initial exposure and subsequent official verification were not captured. Nevertheless, the relative scarcity of official NCDC communication as the single primary source is a useful reason to investigate how local messages were distributed and remembered.

A simplistic institutional interpretation would treat 7.3% naming NCDC as direct proof that official messages did not reach staff. That inference is unwarranted: a participant may have received the official text after hearing about it from a colleague, or interpreted an internal message as ministry rather than NCDC communication. More complete future questionnaires should allow multiple sources, ask which was encountered first and which was considered authoritative, and document whether the respondent could obtain the original text. Separating encounter, credibility and comprehension would support more actionable communication evaluation.

The presence of substantial do-not-know responses even among those already aware suggests that mere exposure to a policy headline may not address specific uncertainties. In particular, half of aware respondents answered do not know to the foreign-recruiter authorization proposition. Before interpreting this as a factual knowledge deficit, however, researchers should establish an independently verified item key from the official 2024 document and assess whether each question unambiguously captures that text [5,6]. Such checking was not retrospectively substituted for absent validation in this analysis.

4.3 Workforce differences and the danger of overclassification

None of the six demographic or occupational omnibus comparisons reached the conventional 0.05 significance threshold. That pattern should not be summarized as evidence that the entire workforce

receives information equally. The occupational groups range from 12 to 140 respondents, the sample is self-selected, and invitation coverage by cadre is unknown. Large differences among selected categories can occur by chance, while smaller systematic disparities might be missed with sparse cells.

Future institutional monitoring should document staff counts and invitation coverage by cadre before interpreting who is reached. This is particularly relevant for employees who work in shifts, have less predictable access to online workplace channels, or are seconded. We do not know whether such groups were under-recruited here. In a subsequent study they should be identified through a complete sampling frame and a clearly documented contact protocol rather than through retroactive assumptions about the observed respondent mix.

4.4 A feasible evaluation pathway for policy communication

For practical monitoring, a staged set of indicators would be more informative than a single satisfaction or awareness percentage. The first stage is documented exposure: whether employees received an identifiable official notification and when. The second is recognition: whether they recall the relevant policy. The third is verified comprehension of a small set of clearly sourced provisions. The fourth is institutional applicability: whether staff can identify whom to contact and which procedure to follow. The fifth is feedback: whether unanswered questions are recorded and resolved. This is a proposed future evaluation structure and was not experimentally tested in the present study.

The first stage would require reliable administrative records of circular distribution and staff access, separated from survey self-report. The second stage could preserve the exact B1 wording to support comparisons over time. The third would require an expert-reviewed answer key and short cognitive interviews to confirm question clarity; if an aggregate knowledge scale is desired, content validity, item functioning and scoring assumptions

should be tested before use [16]. The fourth and fifth stages are operational: staff should be able to find current policy guidance and a route for questions that cannot be answered through informal summaries. Evaluation should also consider dissemination equity. An aggregate recognition percentage can remain stable even if one group obtains reliable briefings while another relies on speculation. Meaningful subgroup comparisons would require documented population denominators, consistent modes of invitation and enough participants within categories to estimate disparities. Where a probability sample is feasible, explicit inclusion probabilities and nonresponse management would allow stronger inference than a voluntary open survey [12-14]. Research design must match the proposed claim. To evaluate whether a briefing improved understanding, a study could measure comprehension before and after a dated communication, preferably with a comparison group or a structured stepped implementation. Merely observing that already-aware employees express stronger agreement with policy statements would not establish a program effect. To examine migration decisions, valid retention or mobility outcomes rather than favorable beliefs about policy intent would be required. The present descriptive results identify questions for such studies but cannot substitute for them.

4.5 Strengths, limitations and implications for future research

The analysis has several strengths within its descriptive scope. It reports the respondent count and questionnaire skip structure transparently; it separates awareness from knowledge and policy perceptions; it retains do-not-know responses; and it presents whole-sample and aware-subgroup denominators distinctly. The detailed occupational distributions also permit readers to assess the size of categories underlying subgroup percentages. These features improve reproducibility of interpretation and are more defensible than creating a new overall knowledge score after the fact.

The most important limitation is selection. A

WhatsApp-distributed convenience questionnaire does not produce known selection probabilities, and no reliable total invitation count or response rate is available. People with strong views, greater digital access or more available time may have been more likely to respond. Therefore, the proportion aware cannot be generalized to the full NCDC workforce with a design-based margin of error. Neither the nominal Wilson interval nor the non-significant chi-square tests resolves this concern [12-14]. A second limitation concerns measurement. Policy awareness was measured using a single recognition question, the main channel question accepted one answer, and the familiarity/perception items were not tested as a validated construct. The B4 statements were administered only after a positive B1 answer and no prospective scoring key was retained. As a result, there is no defensible whole-sample knowledge index or causal exposure model. The study also did not observe actual communication materials, detailed message timing, independent policy comprehension or organizational implementation outcomes. Paul Imolemen Irabor Third, this was a one-setting, one-time analysis using self-reports. Exact fieldwork dates and final ethics details must be verified for publication. The broad employment and tenure categories limit independent screening of all records against the intended eligibility criteria. Descriptive results may be sensitive to differences in who volunteered; triangulation with administrative records, a complete staff list and a more systematic sampling design is a priority before institution-wide inference.

The next empirical step should be a pre-registered or protocol-specified follow-up incorporating validated knowledge questions and both official and informal exposure routes. A confidential, probability-based survey would allow management to examine whether awareness varies materially by occupation, location or employment conditions, while structured interviews could clarify why certain policy statements remain uncertain. Repeating the survey at known intervals could distinguish improvements in recognition from improvements in verified comprehension and response pathways.

4.6 Operationalizing a future communication evaluation

A communication monitoring system needs to distinguish implementation integrity from communication success. An agency can send a valid circular without every employee receiving it, and it can distribute an announcement widely without employees understanding the restrictions and procedures it contains. These are different failure points and call for different evidence. Document delivery can be assessed from circulation records; recognition through a short direct question; comprehension through clearly verified items; and practical relevance through whether staff can identify the responsible office, relevant procedures and current guidance. The present survey recorded the second stage and portions of the third, but not the first or fourth in a way that supports full evaluation. The results also suggest a need for careful distinction between policy intent and implemented entitlement. For example, agreement that the migration policy offers clear retention incentives was relatively high among the aware subgroup, yet the questionnaire did not observe how those incentives were financed, made available or experienced. Future dissemination materials should link broad objectives to dated implementation updates and explicitly identify provisions awaiting operational clarification. This would allow researchers to test whether employees distinguish an approved national intention from a benefit already available within their employment setting. The suggestion follows from the type of uncertainty shown in the responses; its effectiveness has not been demonstrated by this study.

Feedback design is another distinct component. A channel that tells staff where to read a policy may not show whether their questions have been resolved. A defensible monitoring framework could record how frequently employees request clarification, which parts of the document generate uncertainty, whether responses are issued consistently and how long resolution takes. Such monitoring should not expose individual workers to reprisals for admitting that they do not understand a policy. Anonymous questions, moderated briefings or confidential follow-up surveys may improve willingness to respond, but that

possibility would need separate evaluation rather than being asserted as a measured fact. Communication and staff appraisal should remain appropriately separated.

The survey findings should not be converted into an unsupported channel-effectiveness ranking. The main-source distribution is a descriptive measure of recalled entry points among respondents who already knew about the policy. It neither counts messages nor estimates how well a source taught the provisions. To evaluate the quality of an official circular, a researcher could compare recipients' responses with a verified answer key after measuring receipt, exposure time and prior knowledge. Comparing self-selected social-media users with employees choosing a ministry source would invite confounding and would not establish causal differences in message accuracy. These design distinctions matter because an attractive graphic showing source percentages can otherwise convey more authority than the measure warrants.

An evaluation of equity should likewise begin before recruitment, not after the final survey. Headquarters staff differ in occupation, shift patterns, digital access and the types of administrative questions their work creates. The current study lacks the roster and invitation counts needed to determine whether particular employee groups were systematically missed. For future work, investigators should establish a frame of eligible workers, specify recruitment strata if stratification is used, record inclusion probabilities and track completed and incomplete invitations. Disproportionate stratification can be appropriate when designed in advance, but weighting and variance estimation must reflect the actual design. A volunteer questionnaire circulated through an internal messaging group should not be retroactively described as such a design [12-14].

Finally, researchers should preserve the uncertainty response as analytically meaningful. For many policy propositions, "do not know" may reflect no exposure to the full document, an ambiguous question, unwillingness to guess, or genuine unresolved administrative guidance. These

interpretations cannot be distinguished by an ordinary item count. A carefully designed follow-up could ask respondents why they were uncertain and present the actual policy passage on which the answer rests. Cognitive testing would examine whether employees understood the question in the intended way and whether alternate answers arose from wording rather than knowledge. Such work is a prerequisite to interpreting any proposed policy-knowledge score as a valid measure rather than an arbitrary sum [16]. Taken together, these design proposals locate the next research question precisely: whether documented institutional communications improve verified comprehension, and for whom. The existing sample can motivate that question, but cannot answer it. A future evaluation should pre-specify the policy passages being taught, identify the communication exposures being compared, establish ethical and statistical recruitment procedures, and state the primary comprehension endpoint before data collection. That approach would generate stronger evidence about communication effectiveness while respecting the distinction between policy recognition, beliefs about policy benefits and knowledge of binding provisions.

5. Conclusion

In this volunteer sample of NCDC Headquarters personnel, fewer than half reported awareness of Nigeria's 2024 Health Workforce Migration Policy. Among respondents who had heard of it, colleagues and social media were the most frequent recalled primary information pathways, whereas familiarity with key provisions and understanding of local application were less frequently endorsed. Individual policy propositions generated considerable uncertainty. These results suggest that monitoring recognition alone would miss important distinctions in the participant experience of policy communication.

The findings support the design of clearer, auditable and evaluable institutional communication processes, not a claim that any specific channel caused the observed knowledge patterns. Given the non-probability recruitment and item-level

measurement limitations, future studies need verified staff denominators, independently validated knowledge measures and prospective evaluation of policy communication. The implications concern policy communication and knowledge assessment; longitudinal organizational outcomes require independent evaluation.

References

1. Toyin-Thomas P, Ikhurionan P, Omoyibo EE, Iwegim C, Ukueku AO, Okpere J, et al. Drivers of health workers' migration, intention to migrate and non-migration from low/middle-income countries, 1970-2022: a systematic review. *BMJ Glob Health*. 2023;8(5):e012338. doi:10.1136/bmjgh-2023-012338.
2. Wariri O, Toyin-Thomas P, Akhirevbulu ICG, et al. Understanding the exodus: a 15-year retrospective cohort study on the pattern and determinants of migration among Nigerian doctors and dentists. *Glob Health Action*. 2024;17(1):2432754. doi:10.1080/16549716.2024.2432754.
3. Yakubu K, Shanthosh J, Adebayo KO, Peiris D, Joshi R. Scope of health worker migration governance and its impact on emigration intentions among skilled health workers in Nigeria. *PLOS Glob Public Health*. 2023;3(1):e0000717. doi:10.1371/journal.pgph.0000717.
4. World Health Organization Regional Office for Africa. A decade review of the health workforce in the WHO African Region, 2013-2022: implications for aligning investments to accelerate progress towards universal health coverage. Brazzaville: WHO Regional Office for Africa; 2024. ISBN 9789290314981.
5. Federal Ministry of Health and Social Welfare. National Policy on Health Workforce Migration. Abuja: FMOHSW; 2024.
6. World Health Organization Regional Office for Africa. WHO, UK Government, supports Nigeria in developing a strategic approach to

managing health workforce migration [Internet]. Brazzaville: WHO Regional Office for Africa; 2024 Sep 6 [cited 2026 Sep 19]. Available from: <https://www.afro.who.int/countries/nigeria/news/who-uk-government-supports-nigeria-developing-strategic-approach-managing-health-workforce-migration>.

7. Giwa A. Trust as foundation: can Nigeria's new health workforce policy stem the migration tide? *Int J Health Plann Manage*. 2025;40(2):494-498. doi:10.1002/hpm.3879.
8. World Health Organization. Bilateral agreements on health worker migration and mobility: maximizing health system benefits and safeguarding health workforce rights and welfare through fair and ethical international recruitment. Geneva: WHO; 2024. ISBN 9789240073050.
9. Yakubu K, Blacklock C, Adebayo KO, Peiris D, Joshi R, Mondal S. Social networks and skilled health worker migration in Nigeria: an ego network analysis. *Int J Health Plann Manage*. 2023;38(2):457-472. doi:10.1002/hpm.3595.
10. Organisation for Economic Co-operation and Development. OECD Survey on Drivers of Trust in Public Institutions - 2024 Results: Building Trust in a Complex Policy Environment. Paris: OECD Publishing; 2024. doi:10.1787/9a20554b-en.
11. Nigeria Centre for Disease Control and Prevention. Strategy and Implementation Plan 2023-2027. Abuja: NCDC; 2023.
12. Baker R, Brick JM, Bates NA, Battaglia M, Couper MP, Dever JA, et al. Report of the AAPOR Task Force on Non-Probability Sampling. American Association for Public Opinion Research; 2013.
13. Setia MS. Methodology Series Module 3: Cross-sectional Studies. *Indian J Dermatol*. 2016;61(3):261-264. doi:10.4103/0019-5154.182410.
14. Statistics Canada. 3.2.3 Non-probability sampling. In: *Statistics: Power from Data!* [Internet]. Ottawa: Statistics Canada; 2021 [cited 2026 Oct 9]. Available from: <https://www150.statcan.gc.ca/n1/edu/power-pouvoir/ch13/nonprob/5214898-eng.htm>.
15. Lakens D. Sample size justification. *Collabra Psychol*. 2022;8(1):33267. doi:10.1525/collabra.33267.
16. Boateng GO, Neilands TB, Frongillo EA, Melgar-Quinonez HR, Young SL. Best practices for developing and validating scales for health, social, and behavioral research: a primer. *Front Public Health*. 2018;6:149. doi:10.3389/fpubh.2018.00149.
17. von Elm E, Altman DG, Egger M, Pocock SJ, Gotsche PC, Vandenbroucke JP; STROBE Initiative. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *BMJ*. 2007;335(7624):806-808. doi:10.1136/bmj.39335.541782.AD.
18. Gupta J, Patwa MC, Khuu A, Creanga AA. Approaches to motivate physicians and nurses in low- and middle-income countries: a systematic literature review. *Hum Resour Health*. 2021;19:4. doi:10.1186/s12960-020-00522-7.
19. Correia T, Kuhlmann E, Lotta G, Beja A, Morais R, Zapata T, et al. Turning the global health and care workforce crisis into action: the pathway to effective evidence-based policy and implementation. *Int J Health Plann Manage*. 2025;40(1):224-233. doi:10.1002/hpm.3860.

Appendix A. Denominator and item-response audit

The appendix specifies the analytic denominator for each policy module item and summarizes the handling of structural missingness. No whole-sample knowledge index was created.

Appendix Table A1. Reporting universe, observed numerator and denominator

Indicator or item	Observed numerator	Reporting denominator	Interpretive boundary
Policy awareness (B1)	191 yes; 209 no	400 survey participants	Recognition of title/existence only
Main information channel (B2)	74 colleagues; 44 social media; 14 official NCDC	191 aware participants	Only one primary recalled source
Familiar with provisions (B3)	74 agree; 79 neutral; 38 disagree	191 aware participants	Self-rated familiarity, not verified mastery
Understands local application (B3)	94 agree; 80 neutral; 17 disagree	191 aware participants	Subjective assessment
Launch year statement (B4)	80 true; 0 false; 111 unsure	191 aware participants	A single policy proposition
Ban statement (B4)	21 true; 107 false; 63 unsure	191 aware participants	A single policy proposition
Recruiter requirement (B4)	41 true; 54 false; 96 unsure	191 aware participants	A single policy proposition
B2-B4 structurally skipped	209 skip records	209 unaware participants	No imputation or wrong-answer coding

The questionnaire did not provide a prospectively validated whole-sample knowledge score. For this reason, values missing by questionnaire design are not used to create synthetic wrong answers, and a response to one policy statement is not generalized to knowledge of the entire policy.