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Health and Work-related Quality of Life, Wellbeing, and Quality of Clinical Care: A Multicentred Cross-sectional Survey of Health Care Workers in South-western Nigeria



Study report from four selected tertiary hospitals in South-West Nigeria, 2021-2022.

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List of Acronyms

FMCA:	Federal Medical Centre, Abeokuta
HCW:	Health Care Workers
MD:	Mean Difference
OAUTHC:	Obafemi Awolowo University Teaching Hospital Complex
OOUTH:	Olabisi Onabanjo University Teaching Hospital
PWI:	Personal Wellbeing Index
QoC:	Quality of Care
QoL:	Quality of Life
SD:	Standard Deviation
SPSS:	Statistical Package for Social Sciences
UCH:	University College Hospital
WRQoL:	Work-Related Quality of Life

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Ethics Approval

Ethical approvals were independently obtained from the health research ethics committees of:

- i. The University of Lethbridge, Lethbridge, Alberta, Canada.
- ii. Federal Medical Centre, Abeokuta, Ogun State, Nigeria.
- iii. Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State, Nigeria.
- iv. University of Ibadan/University College Hospital, Ibadan, Oyo State, Nigeria.
- v. Obafemi Awolowo University Teaching Hospital Complex, Ile-Ife, Osun State, Nigeria.

Executive Summary

Often, health care research focuses on public health, patient outcome, health systems management, and financing, disregarding the wellbeing of the caregivers. The few available literature on health care workers' wellbeing focused on the developed world. This study gave a voice to the job-related stress and wellbeing of Nigerian health care workers. Nigeria covers about one-seventh of the landmass of West Africa; is the most populous black nation and the seventh most populated country in the world. The country is inhabited by over 200 million people with less than 1.95 health care workers per 1000 population.

Nigeria likewise other Sub-Saharan African countries are beleaguered with a high prevalence of both non-communicable and infectious diseases creating a huge health care demand. However, the current ratio of healthcare workers to patients in the region is quite low due to complex sociopolitical and economic problems that reinforce the propensity of caregivers to emigrate to developed countries such as Canada, the United Kingdom, Australia, and the United States of America in search of better wellbeing. Assessing and addressing the level of wellbeing among health care workers in Nigeria will help curtail the healthcare crisis in the country.

We employed a synchronous parallel qualitative ($n = 40$) and quantitative ($n = 1580$) design across four tertiary hospitals in Southwest Nigeria: Oyo, Ondo, and Ogun States. A focus group discussion was conducted in each study location ($n = 4$), while non-discussants responded to four standardized questionnaires each for assessment of the quality of life, personal wellbeing, work-life and quality of care. For the qualitative study, thematic analysis was completed using Nvivo (version 13). Statistical analysis was completed on the quantitative data using frequency (percentage), mean (SD), Chi-square, Cronbach's alpha, Inter-Class Correlation, one-way

ANOVA, Pearson's correlation coefficient, multiple linear regression, binary logistic regression, exploratory factor analysis, and structural equation modelling; alpha level set at $p < 0.05$ (SPSS version 27).

Results of the current study showed that many of the health care professionals had poor quality of work-life and wellbeing resulting in poor quality of care for patients. We observed demographic variations in participant wellbeing, work- and health-related quality of life. Similarly, quality of care was poor and differed significantly across the demographics such that men, participants between ages of 30 and 39 years, staff under two years in practice, entry-level degree holders, pharmacists and medical practitioners, part-time workers, participants on permanent morning duty, and those who worked longer periods delivered poorer quality of care with respect to their counterparts. Participants identified factors that impede quality care delivery as poor remuneration, lack of incentives, unsafe workplace, infrastructural deficit, the chronic shortage of medical supplies, equipment and consumables, frustration with water and power supply, inadequate funding, poor health financing and insurance scheme for patients. Others are stalled promotion and paucity of in-service training opportunities. Practicable recommendations have been made in this light.

Introduction

Nigeria is the most densely populated country in Africa, the most populous black country on earth, and the seventh-largest population in the world, with approximately 200 million people, the sub-Saharan African country covers (920,000 sq. km) one-seventh landmass of West Africa (Amoo, et al., 2020). Just as in other Sub-Saharan African countries, there is a high prevalence of communicable and non-communicable diseases in Nigeria leading to high demand for health services (Agan & Marconi, 2019; Janssens, et al., 2016). However, the Nigerian healthcare sector is faced with perennial problems such as infrastructural decay, hospitals leadership and management tussle, inadequate funding, and poor wellbeing of the health care workers (Adeloye et al., 2017).

In this study, health care workers (HCW) include a heterogeneous mix of health care service providers such as medical practitioners (physicians, surgeons, dentists, medical psychologists), nurses, physiotherapists, pharmacists, radiographers, medical laboratory scientists, occupational therapists, dietitians, and administrative support staff who work synchronously towards patient care and optimum health of the populace (Vazirani et al., 2005; Damschroder et al., 2009). Although the demographic characteristics of HCW differ across regions, women, physicians, and nurses account for the largest group of HCW globally (Squires et al., 2016; Thakre et al., 2017). In Nigeria, female nurses are the majority of the HCW. However, the HCW-patient ratio is very low across all HCW designations in the country with an average of 1.95 HCW per 1000 population (Adeloye et al., 2017). The current ratio of Nigerian HCW to patients is quite low due to complex sociopolitical and economic problems that reinforce the propensity of caregivers to emigrate to developed countries such as the United States of America, Canada, and the United Kingdom, in search of better wellbeing (Omenka, et al., 2020). Low HCW to patient ratio leads to

higher workload, work stress, frustration, burnout, job dissatisfaction, absenteeism, and turnover (Awosoga et al., 2020; Dubale et al., 2019).

Despite the occupational distress experienced by HCWs, the World Health Organization (WHO, 2018) advocates for a high quality of care (QoC) characterized by effective, safe, people-oriented, timely, equitable, inclusive, and efficient health care delivery. The QoC is a measure of the extent to which healthcare services provided desirable patient experiences and improved health outcomes (IOM, 2001; WHO, 2021). To achieve high QoC, healthcare systems are expected to provide the HCWs with good working conditions to improve their work-related quality of life and service delivery (Awosoga et al., 2020; Barbosa et al., 2018). Furthermore, work-related quality of life (WRQoL) is an indicator of the influences of work upon the goodness and meaning in life, as well as people's happiness and wellbeing (Hsu and Kernohan, 2006). Despite the suboptimal work milieu, health professionals often pursue a desirable QoC to the detriment of their personal wellbeing indices (PWI), and health-related quality of life (QoL).

We hypothesized that poor quality of life, work-life and personal wellbeing will have a negative effect on health professionals and their QoC. The qualitative part of this study gave the participants a platform to express their perceptions on their quality of life and clinical care. The quantitative aspect explored participants' levels, correlates, and predictors of QoL, PWI, WRQoL, and QoC, across the demographic variations. The outcome of this study would have policy implications for the Nigerian healthcare workforce.

Objectives

The study aimed to:

- i. assess levels and patterns of QoL, wellbeing, WRQoL, and QoC of HCWs at selected tertiary health institutions in Southwest Nigeria.
- ii. determine the correlation among QoL, PWI, WRQoL, and QoC of HCWs at selected tertiary health institutions in Southwest Nigeria.
- iii. predict the QoL, PWI, WRQoL, and QoC of HCWs based on their wellbeing and life quality outcomes and sociodemographic factors.

Methods

Study Design

The study was a multicenter mixed-methods cross-sectional study. We utilized synchronous qualitative and quantitative data collection. The benefit of this approach is that qualitative data provides in-depth participants' perspectives of their work-life and means data triangulation to validate the survey results (Halcomb et. al., 2009; Yin, 2003). Participants were recruited by convenience sampling method using the 'Most-Similar Case' technique, which involves choosing cases or sites that are similar in as many variables as possible except for the variable of interest (Gerring & Cojocaru 2016).

Study Locations

Of the six states that make up southwestern Nigeria, four public-funded tertiary hospitals in Ogun, Osun, and Oyo states were purposively included in the study based on sociocultural, environmental, political, and socioeconomic similarities of those states. It was assumed that the three states are representative of the others, except for Lagos State which is more metropolitan and

as such divergent in the work milieu. The hospital selection criteria were being (i) public-funded, (ii) referral Center with tertiary level of care, and (iii) bed capacity (>500). The included hospitals were the Federal Medical Centre, Abeokuta (FMCA), and Olabisi Onabanjo University Teaching Hospital (OOUTH), Sagamu, both in Ogun State; Obafemi Awolowo University Teaching Hospital Complex (OAUTH), Ile-Ife, Osun State; and the University College Hospital (UCH), Ibadan, Oyo State.

Study Participants

The designated HCW were medical practitioners (physicians, surgeons, dentists, and medical psychologists), nurses, physiotherapists, pharmacists, radiographers, medical laboratory scientists, occupational therapists, and others (dietitians and administrative support staff). The sample size was determined from each Centre using the formula

$$\frac{\frac{Z^2 p(1-p)}{e^2}}{1 + \left(\frac{Z^2 p(1-p)}{e^2 N} \right)}$$

Where Confidence Level = 95%, $p = 0.5$, Error (Margin) = 0.05, Z-score = 1.959964 and population size for OOUTH, FMCA, UCH and OAUTH are 566, 2000, 3000 and 1490, respectively. Therefore, the minimum sample size for OOUTH, FMCA, UCH and OAUTH were 229, 323, 341, and 306, respectively, giving a total of 1199 HCWs. In anticipation of 33% incomplete survey response, 1600 participants were recruited.

Synchronous with quantitative data collection, a focus group discussion was conducted in each of the centres using 40 discussants (FMCA = 8, UCH = 12, OAUTH = 10, OOUTH = 10) who were selected to maximize the demographic variations (Tables 1 and 2). Discussants did not participate in the quantitative arm of the study. Krueger and Casey (2000) suggested that four to ten

participants are an adequate size for a focus group, and four focus groups are enough of a robust investigation of a research topic. A post hoc analysis of data from the focus group discussions at the four research locations showed that data saturation was achieved (Hennink et al., 2019).

Study Instruments

A biodata (demographics variable) form and four standardized questionnaires (Appendix A) were used for qualitative data collection. The biodata form was used to collect participants' demographic variables such as gender, age, years in practice, highest educational qualification, designation, appointment type, work schedule, average weekly work volume, and practice location. Health-related QoL was obtained with the WHO-5 questionnaire (Topp et al., 2015). WHO-5 is a five-item questionnaire regarding participants' feelings with components of healthy living in past two weeks on a 6-points Likert scale (score 0 to 5). Each participant's responses were summed (range = 0 to 25) and converted into percentage scores. The WHO-5 has been reported to be valid and reliable by a systematic review of 213 studies that applied the instrument in diverse settings; the average sensitivity and specificity were 0.86 and 0.75, respectively (Topp et al., 2015).

Participants' wellbeing was obtained with Personal Wellbeing Index, an eight-item valid and reliable questionnaire regarding participants' satisfaction with their life as a whole, health, life achievements, relationships, safety, community, future security, and spirituality on an 11-points (score 0 to 10) Likert scale (International Wellbeing Group [IWG], 2013). Each participant's responses were summed and converted into percentage scores (IWG, 2013). The PWI has been reported to have good psychometric properties: validity, reliability, and sensitivity (Lau et al., 2005). The internal consistency measured with Cronbach's alpha ranges between 0.86 and 0.89

(Yousefi et al., 2013).

Similarly, the WRQoL questionnaire was used to assess participants' quality of work life. The 24-item questionnaire contains six sub-domains: general wellbeing, home-work interface, job-career satisfaction, control at work, working conditions, and stress at work (Easton & Van Laar, 2012). WRQoL contains 21 positively worded questions and three negatively worded questions (items 7, 9, and 19). The questionnaire asked the extent a participant agreed on each of the items as it related to their work-life on a 5-point Likert scale, 1 = strongly disagree to 5 = strongly agreed. The PWI questionnaire was found valid, reliable, and consistent among a cohort of HCWs, overall scale reliability was 0.91 with good subscale reliabilities ranging from 0.76 to 0.91 (Van Laar et al., 2007).

Furthermore, the participants' quality of clinical care was obtained using the QoC questionnaire (Luther et al., 2019). The 22-item questionnaire was subdivided into two subdomains: positively worded person-centred care (12 items) and negatively worded discordant care (10 items). The questionnaire inquired on how frequent the listed items had occurred while the participant related with patients in the last six months. Responses were on a 6-point Likert scale, 0 = never to 5 = always. The QoC questionnaire is valid and reliable, Cronbach's alpha for the clinician QOC subscales were person-centered Care = 0.86 and discordant Care = 0.74.

The focus groups were led to discuss among themselves and provide their perspectives on their work environment, personal wellbeing, QoL and how those factors modified the QoC they rendered to patients. Appendix B is the full interview guide. Other instruments for focus group discussion include a digital audio recorder, timer, whiteboard, markers, note pads and pens for participants, and researchers' field notes (Krueger & Casey, 2000).

Procedure for Data Collection and Storage

The research assistants distributed the questionnaires to HCWs within the selected hospitals. Health care workers were included in the study if they have worked in one of the selected facilities for at least six months and were willing to read and sign a written informed consent form before responding to the survey. The questionnaire was self-administered and returned to a research assistant after completion. The center co-investigators' number was boldly printed on the survey to facilitate the return of questionnaires in the case of participants who failed to submit them immediately. Research assistants extracted the data from the questionnaires and transferred same to an already coded SPSS spreadsheet in designated computers at the four study locations. Extracted questionnaires were stored in a big brown envelope and locked up in a secure drawer at one of the study locations. Individual datasets were merged into a final anonymized dataset, password encrypted and saved to the cloud. Every other data about the study whether anonymized or not were destroyed.

The focus group discussions and recording started on the arrival of all invited discussants at the scheduled date, time, and venue. Centre co-investigators who were experienced qualitative interviewers, moderated the sessions using the interview guide (Appendix B). Interview techniques such as prodding, itemizing, and describing were employed to encourage participants to clarify their perceptions. Discussants were rewarded with light refreshment after the focus group. The audio records were transcribed verbatim and merged in a single password encrypted file sent to two independent qualitative analysts.

Data Analyses

Quantitative analyses

Quantitative data were analyzed using SPSS 27.0 version software (SPSS Inc., Chicago, Illinois, USA). The dataset was cleaned of missing variables, all entries with more than 25% missing variables in a domain were deleted for that particular domain. The data were summarized using descriptive statistics of frequency (percentage) and mean (standard deviation). Participants' WHO-QOL, PWI, WRQoL, and QoC scores were summated in separate columns and converted to percentage points, this was in line with the rubric provided by the instrument developers and the general approach for analysis of Likert scale data (Warmbrod 2014). We obtained continuous normally distributed variables for each of the outcomes (skewness < 3.29). We dichotomized the scores into poor and good outcomes using the midpoint ($[\text{mean} + \{\text{S.D}/2\}]$ rounded): WHO-QoL and WRQoL = 70%, and PWI and QoC = 75%.

Inferential statistics included independent sample t-test and one-way analysis of variance (ANOVA) for determination of mean differences in QOL, PWI, WRQoL, and QoC across categories of the demographic variables, Pearson's correlation coefficient among the outcomes, and independent sample t-test analysis for differences in mean QOL, PWI, and WRQoL among people classified to have provided poor and good QoC. Furthermore, multiple linear regression (stepwise approach) was employed to determine the best set of demographic variables and QoL indicators that could best predict HCWs' QOL, PWI, WRQoL, and QoC using the continuous (scale) scores as dependent variables. Binary logistic regression, forward Wald approach was employed to determine the best set of demographics and QoL indicators that could best classify participants with poor or good QOL, PWI, WRQoL, and QoC.

The domain validity and reliability of the combined instrument were obtained using Cronbach alpha and Intraclass correlational statistics. How well the items fit into domains were assessed through exploratory factor analysis (Maximum Likelihood with Varimax-orthogonal rotation) procedure and confirmatory factor analysis. A structural equation modelling through path analysis for the relationship between QoC with other study outcomes was completed using Analysis of Moment Structures (AMOS). Maximum likelihood estimation procedure was used to estimate the coefficients. The model fitting was assessed using a Chi-square goodness of fit test as well as the comparative fit index (CFI) and the root-mean-square error of approximation (RMSEA). The measurement of association was interpreted via the odds ratio and confidence intervals of 95%.

Qualitative analyses

The electronic copies of focus group transcripts were transferred to NVivo (version 13) software for content analysis. Afterwards, thematic analysis was performed including inductive methods for identification of themes and deductive methods to recognize overarching concepts in HCWs' QOL, PWI, WRQoL, and QoC. The first analyst read several transcripts and inductively developed a codebook based on emerging patterns. The codebook was then reviewed by the second analyst and two co-investigators who are experts in qualitative analysis. Their input was incorporated in the final codebook and was used to analyze all the transcripts. We searched and reported the factors that caused and sustained HCW's poor QOL, PWI, WRQoL, and QoC.

Results

Descriptive Analysis

Demographic characteristics of participants

A total of 1590 questionnaires were administered across the four centers, most of the participants

(n = 1580, 99.4%) completed and returned valid surveys used for the analysis. The demographic characteristics of our study participants are identified in this section. Participants' age, gender, years of practice, educational levels, designation, appointment, work schedule, work volume, and job settings are discussed.

Participants' age, sex, and years in practice

Figures 1 and 2 shows the distribution of the participant across study location, and gender, respectively. Table 1 shows an even age distribution across Nigerian healthcare workforce, many participants (n = 985, 62.3%) were within the age range of 30 to 49 years, six individuals (0.4%) aged 60 to 69 were on contract. The official retirement criteria for HCWs in Nigeria is 60 years of age or 35 years of service (Magbadelo, 2020), however, some energetic retired HCWs who put in outstanding performances while in services may be recalled to provided consultancy and specialist services within a short contract duration (Federal Republic of Nigeria, 2008). The average (SD) participants' age was 37.85 (9.28) years – a finding in agreement with another large sample, a nationwide survey of Nigerian HCWs (Ogunleye et al., 2016). Women (n = 982, 62.2%) dominated the study sample. Other studies have shown more females (60.7% – 65.0%) in the Nigerian healthcare workforce (Ogunleye et al., 2016; Umeh et al., 2008). Majority of the participants were within the first decade of their appointment (n = 1103, 69.8%), which implies that without recourse to their biological age, many participants have about 25 more service years.

Table 1 Participants' gender, age, and years of practice (n = 1580)

Parameter	Quantitative survey <i>n</i> (%) 1580 (100%)	Focus group discussion <i>n</i> (%) 40 (100)
Gender		
Female	982 (62.2)	20 (50)
Male	585 (37.0)	20 (50)
Chose not to say	13 (0.8)	0 (0)
Age group		
20 – 29	303 (19.2)	
30 – 39	618 (39.1)	
40 – 49	367 (23.2)	
50 – 59	211 (13.4)	
60 – 69	6 (0.4)	
Chose not to say	75 (4.7)	
Years in practice		
0 – 2	512 (32.4)	0 (0)
3 – 5	328 (20.8)	1 (2.5)
6 – 10	263 (16.6)	3 (7.5)
≥11	471 (29.8)	35 (87.5)
Chose not to say	6 (0.4)	1 (2.5)

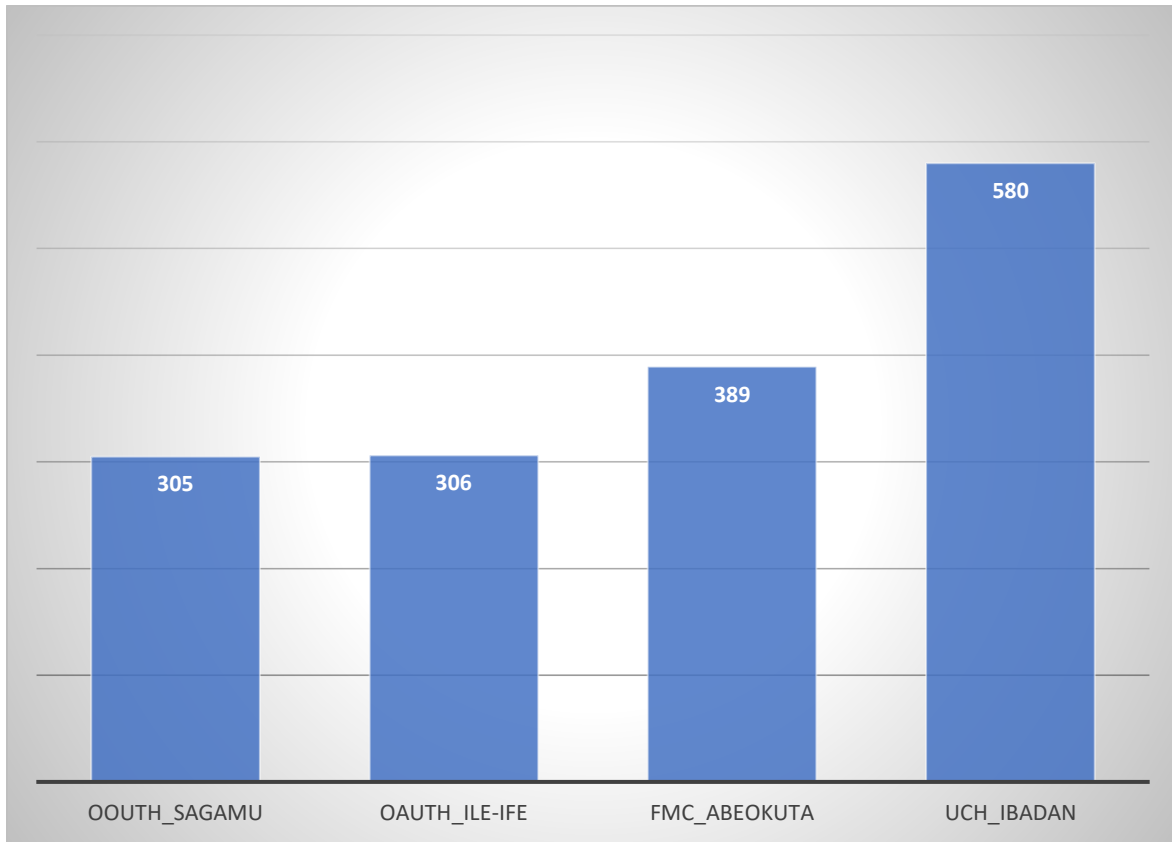


Figure 1. Survey respondents' distribution across study locations (n = 1580).

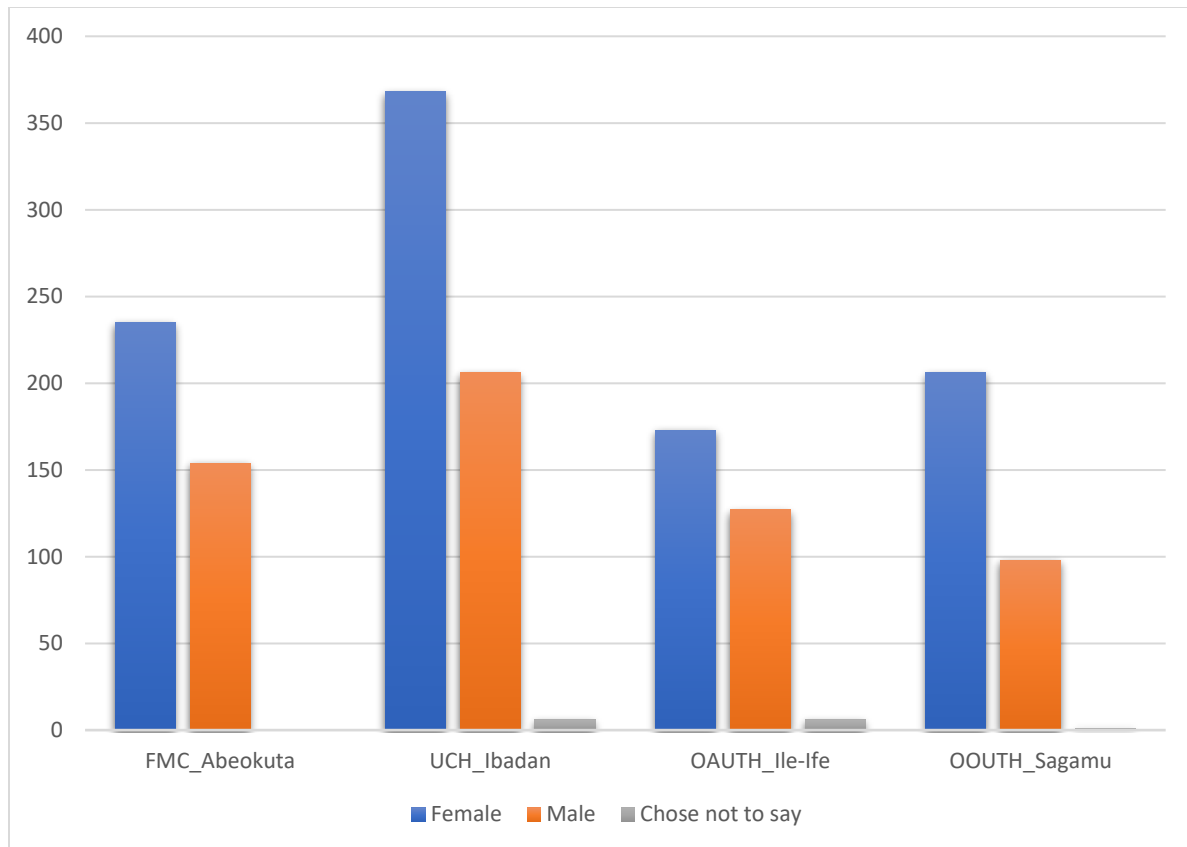


Figure 2. Sex distribution of the survey respondents across study locations (n = 1580).

Participants' education level, designation, nature of the appointment, work schedule and volume

The preponderance of the participants (n = 1076, 68.1%) had a bachelor's degree in the relevant field (Table 2). This is in line with the fact that many of the Nigerian health entry-level education are bachelor programs. Also, a bachelor's degree is sufficient for entry and progression to the zenith of the various clinical scheme of service. Medical practitioner (n = 609) and nurses (n = 570) constituted 74.6% of all the HCWs. Table 2 showed that majority of the participants (n = 1380, 87.3%) were full time employee, on either regular period (8:00 am to 4:00 pm) with 40-hours/monthly call duty (n = 789, 49.9%), or 8-hour shift duty (n = 468, 29.6%). Therefore, many of the participants reported 41-60 hours of work weekly (n = 739, 46.8%).

Table 2 Participants' education level, designation, appointment, work schedule and volume.

Parameter	Quantitative survey <i>n</i> (%) 1580 (100%)	Focus group discussion <i>n</i> (%) 40 (100)
Education level		
National Diploma	134 (8.5)	
Bachelor (entry-level)	1076 (68.1)	
Masters or Ph.D.	359 (22.7)	
Chose not to say	11 (0.7)	
Designation		
Nurse	570 (36.1)	8 (20.0)
Medical practitioner†	609 (38.5)	13 (32.5)
Pharmacist	145 (9.2)	5 (12.5)
Physiotherapist	120 (7.6)	9 (22.5)
Medical lab. scientist	108 (6.8)	5 (12.5)
Occupational therapist	10 (0.6)	0 (0)
Radiographer	7 (0.5)	0 (0)
Others†	11 (0.7)	0 (0)
Appointment		
Full time	1380 (87.3)	
Part-time	187 (11.9)	
Casual	10 (0.6)	
Chose not to say	3 (0.2)	
Work schedule		
Permanent morning and call duty	789 (49.9)	
Shift duty	468 (29.6)	
Shift and call duty	30 (1.9)	
Permanent morning	289 (18.3)	
Chose not to say	4 (0.3)	
Work volume		
< 20 hours	67 (4.2)	
20-40 hours	419 (26.5)	
41-60 hours	739 (46.8)	
> 60 hours	350 (22.2)	
Chose not to say	5 (0.3)	

†Others = Dieticians, environment and maintenance staff, technicians, and administrative staff.

Response Distributions, Central Measures, and Tests for Mean differences***World Health Organization – health-related quality of life (WHO-QoL)***

Participants' responses to the 5-item WHO-QoL are shown in Table 3. Most of the time, many 684 (43.3%) of the participants felt cheerful in good spirit, 633 (40.1%) felt calm and relaxed, 610 (38.6%) felt active and vigorous, and 567 (35.9%) felt their daily lives were filled with things that interested them. Less than one-third 478 (30.3%) felt fresh and rested more than half of the time. However, a reasonable number of people experienced the items of good QoL in less than half, sometimes, and at no time. They include participants who rated themselves below average on being cheerful in good spirit ($n = 421$, 26.7%), calm and relaxed ($n = 436$, 27.7%), active and vigorous ($n = 428$, 27.2%), fresh and rested ($n = 523$, $n = 33.2\%$), and in things that interest them ($n = 465$, 29.5%). The mean (SD) participants' QoL was 61.86% (21.30), the expected cumulative score was between 0 and 100%.

Table 4 shows the levels of WHO-QoL across the demographics using 70% as the cut off mark for good QoL. Men reported poorer QoL (58.3%) than women (55.2%). Younger HCWs (64.0%) and personnel with less than two years in practice (61.9%) reported poorer QoL relative to the other groups. Bachelor's degree holders (57.2%), medical practitioners (66.0%), part-time workers (64.7%), staff on concurrent shift and call duties (70.0%), and personnel that put in more than 60 work hours weekly (63.6%) reported poorer QoL than their counterparts. One-way ANOVA showed a statistically significant difference in the QoL across age groups, $F(4, 1500) = 2.728$, $p = 0.028$. The Games-Howell post hoc analysis confirmed that participants aged 50 to 59 years reported higher QoL than their counterparts aged 30 to 39 years (mean difference [M.D.] = 5.19%, $t = 2.93$, 95% CI = 0.35, 10.04, $p = 0.029$), there was no significant difference between other age

groups. There was a significant difference in the QoL across designations ($F [6, 1562] = 5.397, p < 0.001$); Tukey post hoc test showed that nurses ($M.D. = 5.45\%$, $t = 4.43$, $95\% \text{ CI} = 1.81, 9.08$, $p < 0.001$) and physiotherapists ($M.D. = 9.35\%$, $t = 4.43$, $95\% \text{ CI} = 3.12, 15.58$, $p < 0.001$) reported higher QoL than medical practitioners. Furthermore, there was a significant difference in the QoL across workloads ($F [3, 1571] = 2.929, p = 0.033$); Tukey post hoc test showed that staff that worked less than 20 hours weekly reported higher QoL than their counterparts that worked above 60 hours weekly, $M.D. = 7.12\%$, $t = 2.51$, $95\% \text{ CI} = -0.16, 14.41$, $p = 0.05$. However, the perceived differences in QoL across gender, years in practice, education levels, appointment type, and work schedule were not statistically significant (Table 5).

Table 3 Response distribution on WHO-Quality of Life Scale

Item	<i>N</i>	All of the time 5	Most of the time 4	More than half of the time 3	Less than half of the time 2	Some of the time 1	At no time 0	Mean (Median)
		<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)	
I have felt cheerful in good spirits.	1576	145 (9.2)	684 (43.3)	326 (20.6)	185 (11.7)	210 (13.3)	26 (1.6)	3.18 (4)
I have felt calm and relaxed.	1576	130 (8.2)	633 (40.1)	377 (23.9)	200 (12.7)	211 (13.4)	25 (1.6)	3.12 (3)
I have felt active and vigorous	1576	139 (8.8)	610 (38.6)	399 (25.3)	191 (12.1)	214 (13.5)	23 (1.5)	3.13 (3)
I woke up feeling fresh and rested.	1576	123 (7.8)	452 (28.6)	478 (30.3)	287 (18.2)	203 (12.8)	33 (2.1)	2.94 (3)
My daily life has been filled with things that interest me.	1574	132 (8.4)	567 (35.9)	410 (25.9)	252 (15.9)	177 (11.2)	36 (2.3)	3.08 (3)

These were responses to the instruction “Please respond to each item by marking one box per row, regarding how you felt in the last two weeks.” On a scale from 0 to 5, while 0 = at no time, 1 = some of the time, 2 = less than half of the time, 3 = more than half of the time, 4 = most of the time, and 5 = all the time. Total respondent’s score was converted to percentages (expected range, 0 – 25 X 4 = 0 – 100%). The present respondents’ scores ranged from 0 to 100%, mean = 61.86, median = 68, and SD = 21.30.

Table 4 Levels of quality of life, work-life, care, and personal wellbeing (n = 1580)

Parameter	Quality of Life		Personal Wellbeing Index		Work-related Quality of Life		Quality of Care	
	<i>f</i> (%)		<i>f</i> (%)		<i>f</i> (%)		<i>f</i> (%)	
	Poor	Good	Poor	Good	Poor	Good	Poor	Good
Gender								
Female	524 (55.2)	440 (44.8)	491 (50.0)	491 (50.0)	590 (60.1)	392 (39.9)	542 (55.2)	440 (44.8)
Male	341 (58.3)	244 (41.7)	367 (62.7)	218 (37.3)	375 (64.1)	210 (35.9)	399 (68.2)	186 (31.8)
Total	883 (56.3)	684 (43.7)	858 (54.8)	709 (45.2)	965 (61.6)	602 (38.4)	941 (60.1)	626 (39.9)
Age group								
20 – 29	194(64.0)	109(36.0)	176(58.1)	127(41.9)	212(70.0)	91(30.0)	190(62.7)	113(37.3)
30 – 39	359(58.1)	259(41.9)	381(61.7)	237(38.3)	408(66.0)	210(34.0)	408(66.0)	210(34.0)
40 – 49	199(54.2)	168(45.8)	190(51.8)	177(48.2)	223(60.8)	144(39.2)	197(53.7)	170(46.3)
50 – 59	94(44.5)	117(55.5)	76(36.0)	135(64.0)	89(42.2)	122(57.8)	115(54.5)	96(45.5)
60 – 69	2(33.3)	4(66.7)	2(33.3)	4(66.7)	1(16.7)	5(83.3)	2(33.3)	4(66.7)
Total	848(56.3)	657(43.7)	825(54.8)	680(45.2)	933(62.0)	572(38.0)	912(60.6)	593(39.4)
Years in practice								
0 – 2	317(61.9)	195(38.1)	318(62.1)	194(37.9)	355(69.3)	157(30.7)	325(63.5)	187(36.5)
3 – 5	174(53.0)	154(47.0)	188(57.3)	140(42.7)	207(63.1)	121(36.9)	217(66.2)	111(33.8)
6 – 10	143(54.4)	120(45.6)	142(54.0)	121(46.0)	164(62.4)	99(37.6)	167(63.5)	96(36.5)
≥11	249(52.9)	222(47.1)	214(45.4)	257(54.6)	244(51.8)	227(48.2)	239(50.7)	232(49.3)
Total	883(56.1)	691(43.9)	862(54.8)	712(45.2)	970(61.6)	604(38.4)	948(60.2)	626(39.8)
Education level								
National Diploma	67(50.0)	67(50.0)	65(48.5)	69(51.5)	82(61.2)	52(38.8)	67(50.0)	67(50.0)
Bachelor	619(57.5)	457(42.5)	605(56.2)	471(43.8)	702(65.2)	374(34.8)	663(61.6)	413(38.4)
Masters or Ph.D.	191(53.2)	168(46.8)	192(53.5)	167(46.5)	185(51.5)	174(48.5)	217(60.4)	142(39.6)
Total	877(55.9)	692(44.1)	862(54.9)	707(45.1)	969(61.8)	600(38.2)	947(60.4)	622(39.6)
Designation								
Nurse	283(49.6)	287(50.4)	259(45.4)	311(54.6)	323(56.7)	247(43.3)	291(51.1)	279(48.9)
Medical practitioner†	402(66)	207(34)	383(62.9)	226(37.1)	418(68.6)	191(31.4)	422(69.3)	187(30.7)
Pharmacist	84(57.9)	61(42.1)	88(60.7)	57(39.3)	85(58.6)	60(41.4)	104(71.7)	41(28.3)
Physiotherapist	53(44.2)	67(55.8)	65(54.2)	55(45.8)	74(61.7)	46(38.3)	63(52.5)	57(47.5)
Radiographer	4(57.1)	3(42.9)	6(85.7)	1(14.3)	5(71.4)	2(28.6)	5(71.4)	2(28.6)
Medical lab. scientist	50(46.3)	58(53.7)	55(50.9)	53(49.1)	55(50.9)	53(49.1)	56(51.9)	52(48.1)
Occupational therapist	7(70.0)	3(30.0)	5(50.0)	5(50.0)	9(90.0)	1(10.0)	3(30.0)	7(70.0)
Total	883(56.3)	686(43.7)	861(54.9)	708(45.1)	969(61.8)	600(38.2)	944(60.2)	625(39.8)
Appointment								
Full time	759(55.0)	621(45.0)	736(53.3)	644(46.7)	838(60.7)	542(39.3)	806(58.4)	574(41.6)
Part time	121(64.7)	66(35.3)	125(66.8)	62(33.2)	127(67.9)	60(32.1)	140(74.9)	47(25.1)
Casual	5(50.0)	5(50.0)	3(30.0)	7(70.0)	7(70.0)	3(30.0)	4(40.0)	6(60.0)
Total	885(56.1)	692(43.9)	864(54.8)	713(45.2)	972(61.6)	605(38.4)	950(60.2)	627(39.8)

Work schedule

PM and call duty	476(60.3)	313(39.7)	464(58.8)	325(41.2)	523(66.3)	266(33.7)	498(63.1)	291(36.9)
Shift duty	237(50.6)	231(49.4)	237(50.6)	231(49.4)	276(59.0)	192(41.0)	253(54.1)	215(45.9)
Shift and call duty	21(70.0)	9(30.0)	17(56.7)	13(43.3)	18(60.0)	12(40.0)	18(60.0)	12(40.0)
PM	150(51.9)	139(48.1)	145(50.2)	144(49.8)	154(53.3)	135(46.7)	180(62.3)	109(37.7)
Total	884(56.1)	692(43.9)	863(54.8)	713(45.2)	971(61.6)	605(38.4)	949(60.2)	627(39.8)

Work volume

< 20 hours	32(47.8)	35(52.2)	35(52.2)	32(47.8)	31(46.3)	36(53.7)	42(62.7)	25(37.3)
20-40 hours	218(52.0)	201(48.0)	212(50.6)	207(49.4)	252(60.1)	167(39.9)	266(63.5)	153(36.5)
41-60 hours	411(55.5)	329(44.5)	405(54.7)	335(45.3)	443(59.9)	297(40.1)	423(57.2)	317(42.8)
> 60 hours	222(63.6)	127(36.4)	210(60.2)	139(39.8)	243(69.6)	106(30.4)	219(62.8)	130(37.2)
Total	883(56.1)	692(43.9)	862(54.7)	713(45.3)	969(61.5)	606(38.5)	950(60.3)	625(39.7)

Work location

FMC Abeokuta	213(54.8)	176(45.2)	240(61.7)	149(38.3)	248(63.8)	141(36.2)	193(49.6)	196(50.4)
UCH Ibadan	432(74.5)	148(25.5)	308(53.1)	272(46.9)	351(60.5)	229(39.5)	288(49.7)	292(50.3)
OAUTH Ile-Ife	103(33.7)	203(66.3)	154(50.3)	152(49.7)	178(58.2)	128(41.8)	305(99.7)	1(0.3)
OOOUTH Sagamu	139(45.6)	166(54.4)	162(53.1)	143(46.9)	196(64.3)	109(35.7)	165(54.1)	140(45.9)
Total	887(56.1)	693(43.9)	864(54.7)	716(45.3)	973(61.6)	607(38.4)	951(60.2)	629(39.8)

†Medical practitioner = physicians, surgeons, psychologists, dentists. QoL = quality of life. PWI = personal wellbeing index. QoWL = quality of work life. QoC = clinician quality of care. PM = permanent morning. OOOUTH = Olabisi Onabanjo University Teaching Hospital, Sagamu. OAUTH = Obafemi Awolowo University Teaching Hospital, Ile-Ife. FMC = Federal Medical Centre, Abeokuta. UCH = University College Hospital, Ibadan.

Table 5 Respondents' quality of life, work-life, care, and personal wellbeing (n = 1580)

Parameter	n (%) 1580 (100%)	QoL mean (SD)	PWI mean (SD)	QoWL mean (SD)	CQoC mean (SD)
Gender					
Female	982 (62.2)	61.73(21.84)	72.71(14.6)	65.9(10.55)	71.48(12.84)
Male	585 (37.0)	61.99(20.39)	69.78(14.52)	65.41(10.50)	68.02(12.29)
Total	1567 (99.2)	61.82 (21.31)	71.61 (14.63)	65.71 (10.53)	70.19 (12.74)
<i>t</i> -statistic (df)		-0.241 (1565)	3.841 (1565)	0.903 (1565)	5.250 (1565)
<i>p</i> -value		0.809	<0.001*	0.367	<0.001*
Age group					
20 – 29	303 (19.2)	61.73 (19.20)	69.00 (15.52)	64.61 (9.29)	69.14 (13.22)
30 – 39	618 (39.1)	61.04 (20.98)	69.55 (15.01)	64.49 (10.62)	68.46 (12.87)
40 – 49	367 (23.2)	60.99 (21.82)	73.61 (12.85)	66.45 (10.10)	71.49 (12.7)
50 – 59	211 (13.4)	66.23 (22.54)	77.06 (12.99)	69.44 (10.58)	72.67 (11.35)
60 – 69	6 (0.4)	66.67 (30.53)	81.04 (9.03)	73.89 (9.90)	77.12 (9.95)
Total	1505 (95.03)	61.92 (21.16)	71.53 (14.61)	65.72 (10.37)	69.96 (12.78)
<i>F</i> -statistic (df ₁ , df ₂)		2.728 (4, 1500)	15.776 (4, 1500)	11.512 (4, 1500)	6.702 (4, 1500)
<i>p</i> -value		0.028*	<0.001*	<0.001*	<0.001*
Years in practice					
0 – 2	512 (32.4)	61.98 (18.96)	68.95 (15.03)	64.27 (10.22)	69.23 (13.2)
3 – 5	328 (20.8)	62.51 (21.47)	70.81 (15.20)	64.82 (11.01)	67.89 (13.54)
6 – 10	263 (16.6)	62.58 (21.22)	72.43 (13.86)	65.48 (9.91)	69.47 (12.37)
≥11	471 (29.8)	60.99 (23.50)	74.61 (13.65)	68.06 (10.43)	73.07 (11.36)
Total	1574 (99.6)	61.89 (21.28)	71.61 (14.64)	65.72 (10.51)	70.14 (12.76)
<i>F</i> -statistic (df ₁ , df ₂)		0.468(3, 1570)	13.101(3, 1570)	12.111(3, 1570)	13.094(3, 1570)
<i>p</i> -value		0.705	<0.001*	<0.001*	<0.001*
Education level					
National Diploma	134 (8.5)	65.31 (21.25)	74.00 (14.42)	65.50 (12.06)	73.14 (13.60)
Bachelor (entry-level)	1076 (68.1)	61.56 (21.03)	70.80 (15.12)	64.87 (10.41)	69.36 (13.03)
Masters or Ph.D.	359 (22.7)	62.53 (21.25)	72.90 (13.04)	68.22 (9.86)	71.17 (11.37)
Total	1569 (99.3)	62.10 (21.11)	71.55 (14.65)	65.69 (10.52)	70.10 (12.77)
<i>F</i> -statistic (df ₁ , df ₂)		1.970 (2, 1566)	4.834 (2, 1566)	13.894 (2, 1566)	6.945 (2, 1566)
<i>p</i> -value		0.140	0.008*	<0.001*	0.001*
Designation					
Nurse	570 (36.1)	63.77 (22.12)	74.48 (14.5)	66 (11.17)	72.31 (13.50)
Medical practitioner†	609 (38.5)	58.32 (20.97)	69.19 (14.62)	64.26 (10.34)	67.75 (12.55)
Pharmacist	145 (9.2)	62.29 (19.71)	69.91 (13.67)	67.43 (9.41)	67.03 (11.92)
Physiotherapist	120 (7.6)	67.67 (18.35)	70.91 (15.17)	67.35 (9.23)	72.15 (10.83)
Radiographer	7 (0.4)	64.57 (16.88)	65.89 (9.12)	62.74 (6.75)	70.78 (7.24)
Medical lab. scientist	108 (6.8)	64.22 (21.65)	73.66 (13.62)	68.65 (10.11)	73.98 (9.60)
Occupational therapist	10 (0.6)	60.80 (18.74)	67.75 (17.33)	61.25 (9.05)	77.18 (6.17)
Total	1569 (99.3)	61.83 (21.30)	71.59 (14.65)	65.69 (10.54)	70.18 (12.74)

<i>F</i> -statistic (df 1, df 2)		5.397(6, 1562)	7.621(6, 1562)	4.993(6, 1562)	10.783(6, 1562)
<i>p</i> -value		<0.001*	<0.001*	<0.001*	<0.001*
Appointment					
Full time	1380 (87.3)	62.1 (21.39)	72.11 (14.5)	65.76 (10.65)	70.83 (12.56)
Part time	187 (11.9)	60.25 (20.28)	67.72 (14.87)	65.25 (9.68)	64.90 (12.81)
Casual	10 (0.6)	64.00 (22.39)	75.63 (20.32)	68.75 (9.63)	70.91 (19.42)
Total	1577 (99.8)	61.89 (21.26)	71.61 (14.65)	65.72 (10.53)	70.13 (12.78)
<i>F</i> -statistic (df 1, df 2)		0.674(2, 1574)	7.830(2, 1574)	0.613(2, 1574)	18.171(2, 1574)
<i>p</i> -value		0.510	<0.001*	0.542	<0.001*
Work schedule					
Permanent morning and call duty	789 (49.9)	61.12 (20.24)	70.21 (14.22)	64.97 (10.39)	69.92 (11.61)
Shift duty	468 (29.6)	63.05 (22.52)	73.44 (14.82)	65.65 (10.72)	71.42 (13.27)
Shift and call duty	30 (1.9)	57.6 (19.27)	69.29 (13.01)	65.69 (8.58)	70.39 (15.48)
Permanent morning	289 (18.3)	62.54 (22.07)	72.73 (15.33)	67.89 (10.54)	68.64 (14.44)
Total	1576 (99.7)	61.89 (21.27)	71.61 (14.65)	65.72 (10.53)	70.14 (12.77)
<i>F</i> -statistic (df 1, df 2)		1.301(3, 1572)	5.685(3, 1572)	5.457(3, 1572)	3.000 (3, 1572)
<i>p</i> -value		0.272	0.001*	0.001*	0.03*
Work volume					
< 20 hours	67 (4.2)	66.87 (18.18)	71.68 (18.54)	68.93 (11.35)	70.13 (12.22)
20-40 hours	419 (26.5)	63.17 (21.02)	73.20 (13.93)	66.50 (9.26)	68.57 (13.60)
41-60 hours	739 (46.8)	61.76 (21.69)	71.86 (14.25)	65.98 (10.88)	70.77 (12.85)
> 60 hours	350 (22.2)	59.74 (21.10)	69.16 (15.23)	63.62 (10.77)	70.54 (11.51)
Total	1575 (99.7)	61.91 (21.28)	71.61 (14.65)	65.72 (10.54)	70.11 (12.77)
<i>F</i> -statistic (df 1, df 2)		2.929(3, 1571)	5.025(3, 1571)	7.739(3, 1571)	2.825(3, 1571)
<i>p</i> -value		0.033*	0.002*	<0.001*	0.038*

* Test statistic = significant at $p < 0.05$. †Medical practitioner = physicians, surgeons, psychiatrist, dentist. QoL = quality of life. PWI = personal wellbeing index. QoWL = quality of work life. CQoC = clinician quality of care.

Personal wellbeing index (PWI)

Participants' reported levels of personal wellbeing were shown in Table 6. On a scale of 0 (no satisfaction at all) to 10 (completely satisfied), the most satisfying aspect of the participants' wellbeing was their spirituality (7.99), health (7.64), and relationships with others (7.59). The least satisfactory aspects were their future security (6.48), community life (6.48), and perceived safety (6.63). The mean (SD) participants' PWI was 71.63% (14.65), the expected cumulative score was between 0 and 100%.

Table 4 shows the levels of PWI across the demographics using 75% as the cut off mark for good personal wellbeing. Men reported poorer PWI (62.7%) than women (50.0%). HCWs aged 30 to 39 years (61.7%) and those with less than two years in practice (62.1%) radiographers (85.7%), part time workers (66.8%), staff on permanent morning and call duties (58.8%), and personnel that put in more than 60 work hours weekly (60.2%) reported poorer PWI than their counterparts. Table 5 showed significant difference in PWI across categories of all demographic variables analysed in this study. Significant gender difference in PWI was observed via independent t-test ($t = 3.841$, $p < 0.001$). One-way ANOVA showed a statistically significant difference in the PWI across age groups, $F(4, 1500) = 15.776$, $p < 0.001$. The Games-Howell post-hoc analysis confirmed that participants aged 50 to 59 years reported higher PWI than their counterparts aged 40 to 49 years ($M.D. = 3.45\%$, $t = 3.08$, 95% CI = 0.39, 6.51, $p = 0.018$), 30 to 39 years ($M.D. = 7.52\%$, $t = 6.96$, 95% CI = 4.56, 10.47, $p < 0.001$), and 20 to 29 years ($M.D. = 8.06\%$, $t = 6.40$, 95% CI = 4.60, 11.52, $p < 0.001$). Similarly, participants aged 40 to 49 years reported a significantly higher PWI than younger age groups 30 to 39 years ($M.D. = 4.06\%$, $t = 4.51$, 95% CI = 1.60, 6.53, $p < 0.001$) and 20 to 29 years ($M.D. = 4.61\%$, $t = 4.12$, 95% CI = 1.56, 7.66, $p < 0.001$). There was a significant

difference in the PWI across practice years ($F [3, 1570] = 13.101, p < 0.001$); Tukey post hoc test showed that those who had practiced for 11 years and above reported higher PWI than those who had practice 3 to 5 years ($M.D. = 3.79\%$, $t = 3.64$, $95\% \text{ CI} = 1.12, 6.47$, $p = 0.002$) and 0 to 2 years ($M.D. = 5.66\%$, $t = 6.15$, $95\% \text{ CI} = 3.28, 8.03$, $p < 0.001$). Those who had practiced for 6 to 10 years reported higher PWI than their counterparts who practice 0 to 2 years ($M.D. = 3.48\%$, $t = 3.16$, $95\% \text{ CI} = 0.65, 6.30$, $p = 0.009$). Furthermore, there was a significant difference in the PWI across education levels ($F [2, 1566] = 4.834, p = 0.008$); Games-Howell post hoc test showed that staff with professional diploma ($M.D. = 3.20\%$, $t = 2.41$, $95\% \text{ CI} = 0.60, 6.34$, $p = 0.044$), or postgraduate degree ($M.D. = 2.10\%$, $t = 2.53$, $95\% \text{ CI} = 0.15, 4.04$, $p = 0.031$) reported higher PWI than their counterparts with bachelor (entry-level) degree.

There was a significant difference in the PWI across designations ($F [6, 1562] = 7.621, p < 0.001$); Tukey post hoc test showed that nurses reported higher PWI than medical practitioners ($M.D. = 5.29\%$, $t = 6.30$, $95\% \text{ CI} = 2.80, 7.78$, $p < 0.001$), and pharmacists ($M.D. = 4.57\%$, $t = 3.39$, $95\% \text{ CI} = 0.60, 8.54$, $p = 0.012$). Also, medical laboratory scientists significantly reported higher PWI than medical practitioners ($M.D. = 4.47\%$, $t = 2.96$, $95\% \text{ CI} = 0.01, 8.93$, $p = 0.049$); there was no significant difference between other designations. There was a significant difference in the PWI across appointment types ($F [2, 1574] = 7.830, p < 0.001$); such that those with full time appointment reported significantly higher PWI than their counterparts on part time ($M.D. = 4.40\%$, $t = 3.86$, $95\% \text{ CI} = 1.72, 7.05$, $p < 0.001$). There was a significant difference in PWI across the work schedules ($F [3, 1572] = 5.685, p = 0.001$); Tukey post hoc showed that HCWs on shift duty only reported significantly higher PWI than those that work regular period with call duties ($M.D. = 3.33\%$, $t = 3.92$, $95\% \text{ CI} = 1.04, 5.42$, $p = 0.001$). There was no significant difference in PWI between other pairs of work schedule. However, there was a significant difference in the PWI

across workloads ($F [3, 1571] = 5.025, p = 0.002$); Games-Howell post hoc test showed that HCWs that worked 20 to 40 hours ($M.D. = 4.05\%$, $t = 3.82$, 95% CI = 1.31, 6.78, $p = 0.001$), and 41 to 60 hours weekly reported significantly higher PWI than their counterparts that worked above 60 hours weekly ($M.D. = 2.70\%$, $t = 2.79$, 95% CI = 0.21, 5.20, $p = 0.028$).

Table 6 Response distribution on Personal Wellbeing Index (PWI) scale (n = 1579)

Item How satisfied are you with:	No satisfaction at all						Completely satisfied					Mean (Median)
	0 f (%)	1 f (%)	2 f (%)	3 f (%)	4 f (%)	5 f (%)	6 f (%)	7 f (%)	8 f (%)	9 f (%)	10 f (%)	
Your life as a whole	2 (0.1)	5 (0.3)	14 (0.9)	19 (1.2)	47 (3.0)	174 (11.0)	228 (14.4)	349 (22.1)	395 (25.0)	181 (11.5)	165 (10.4)	7.22 (7)
Your health	3 (0.2)	7 (0.4)	7 (0.4)	19 (1.2)	48 (3.0)	90 (5.7)	171 (10.8)	272 (17.2)	424 (26.8)	295 (18.7)	243 (15.4)	7.68 (8)
What you are achieving in life	3 (0.2)	3 (0.2)	12 (0.8)	21 (1.3)	59 (3.7)	162 (10.3)	265 (16.8)	358 (22.7)	358 (22.7)	207 (13.1)	131 (8.3)	7.14 (7)
Your personal relationships	5 (0.3)	5 (0.3)	7 (0.4)	20 (1.3)	36 (2.3)	126 (8)	177 (11.2)	300 (19)	398 (25.2)	302 (19.1)	203 (12.8)	7.59 (8)
How safe you feel	10 (0.6)	13 (0.8)	39 (2.5)	70 (4.4)	106 (6.7)	217 (13.7)	241 (15.3)	295 (18.7)	273 (17.3)	186 (11.8)	129 (8.2)	6.63 (7)
Felling part of your community	5 (0.3)	10 (0.6)	16 (1.0)	55 (3.5)	83 (5.3)	281 (17.8)	273 (17.3)	295 (18.7)	324 (20.5)	149 (9.4)	88 (5.6)	6.62 (7)
Your future security	26 (1.6)	28 (1.8)	47 (3.0)	69 (4.4)	123 (7.8)	224 (14.2)	205 (13)	262 (16.6)	266 (16.8)	190 (12)	139 (8.8)	6.48 (7)
Your spirituality or religion	2 (0.1)	5 (0.3)	6 (0.4)	18 (1.1)	32 (2.0)	106 (6.7)	134 (8.5)	244 (15.4)	309 (19.6)	334 (21.1)	389 (24.6)	7.99 (8)

These were responses to the instruction “Thinking about your own life and personal circumstances, how satisfied are you with your (1) life as a whole, (2) health, (3) life achievements, (4) personal relationships, (5) feeling of safety, (6) feeling part of your community, (7) future security, and (8) spirituality.” On a scale from 0 = no satisfaction at all, to 10 completely satisfied. Total respondent’s score was converted to percentages (expected range, 0 – 80 X 1.25 = 0 – 100%). The present respondents’ scores ranged from 8.75 to 100%, mean = 71.63, median = 72.50, and SD = 14.65.

Work-Related Quality of Life (WRQoL)

Participants' responses to items on the WRQoL measure were shown in Table 7. On a scale of 1 (strongly disagree) to 5 (strongly agree), the majority of the participants ($n = 1350$, 85.4%) agreed or strongly agreed that they have a clear set of goals at work. However, many participants were neutral, disagreed, or strongly disagreed that their employers provided them with adequate facilities and flexibility to fit work around their family life ($n = 1160$, 73.4%), or what they needed for effective job delivery ($n = 1193$, 75.5%), and that their work environment was safe ($n = 919$, 58.2%). In terms of satisfaction with working conditions, and overall quality of working life, 1187 (75.1%) and 952 (60.2%) were neutral, disagreed, or strongly disagreed, respectively. The mean (SD) participants' WRQoL was 65.73% (10.52), the expected cumulative score was between 20 and 100%.

Table 4 shows the levels of WRQoL across the demographics using 70% as the cut off mark. Men reported poorer WRQoL (64.1%) than women (60.1%). Younger HCWs aged 20 to 29 years (70.0%) and those with less than two years in practice (69.3%), bachelor's degree holders (65.2%), occupational therapists (90.0%), casual workers (70.0%), staff on permanent morning and call duties (66.3%), and personnel that put in more than 60 work hours weekly (69.6%) reported poorer WRQoL than their counterparts. Table 5 showed significant difference in WRQoL across categories the following demographic. One-way ANOVA showed a statistically significant difference in the WRQoL across age groups, $F(4, 1500) = 11.512$, $p < 0.001$. The Tukey post-hoc analysis confirmed that participants aged 50 to 59 years reported higher WRQoL than their counterparts aged 40 to 49 years ($M.D. = 2.98\%$, $t = 3.37$, 95% CI = 0.56 5.40, $p = 0.007$), 30 to 39 years ($M.D. = 4.95\%$, $t = 6.07$, 95% CI = 2.72, 7.18, $p < 0.001$), and 20 to 29 years ($M.D. = 4.82\%$, $t = 5.24$, 95% CI = 2.32, 7.33, $p < 0.001$). Similarly, participants aged 40 to 49 years

reported a significantly higher WRQoL than younger age groups 30 to 39 years ($M.D. = 1.97\%$, $t = 2.94$, 95% CI = 0.12, 3.81, $p = 0.03$). There was a significant difference in the WRQoL across practice years ($F [3, 1570] = 12.111$, $p < 0.001$); Tukey post hoc test showed that those you had practiced for 11 years and above reported significantly higher WRQoL than those who had practice for 6 to 10 years ($M.D. = 2.57\%$, $t = 3.21$, 95% CI = 0.51, 4.63, $p = 0.007$), 3 to 5 years ($M.D. = 3.24\%$, $t = 4.32$, 95% CI = 1.31, 5.16, $p < 0.001$) and 0 to 2 years ($M.D. = 3.79\%$, $t = 5.74$, 95% CI = 2.08, 5.50, $p < 0.001$). There was no significant difference between other pairs. Furthermore, there was a significant difference in the WRQoL across education levels ($F [2, 1566] = 13.894$, $p < 0.001$); Games-Howell post hoc test showed that staff with a postgraduate degree reported higher WRQoL than their counterparts with bachelor (entry-level) degree ($M.D. = 3.35\%$, $t = 5.49$, 95% CI = 1.92, 4.78, $p < 0.001$).

There was a significant difference in the WRQoL across designations ($F [6, 1562] = 4.993$, $p < 0.001$); Games-Howell post hoc test showed that medical practitioners reported a significantly lower WRQoL than medical laboratory scientists ($M.D. = 4.39\%$, $t = 4.14$, 95% CI = 1.22, 7.56, $p = 0.001$), physiotherapist ($M.D. = 3.09\%$, $t = 3.29$, 95% CI = 0.28, 5.89, $p = 0.021$), and pharmacists ($M.D. = 3.17\%$, $t = 3.56$, 95% CI = 0.54, 5.81, $p = 0.008$). There was no significant difference in the WRQoL across appointment types ($F [2, 1574] = 0.613$, $p = 0.542$). However, there was a significant difference in WRQoL across the work schedules ($F [3, 1572] = 5.457$, $p = 0.001$); Tukey post hoc showed that HCWs on morning duty (regular hours) only reported significantly higher WRQoL than those on permanent morning and call duties ($M.D. = 2.91\%$, $t = 4.04$, 95% CI = 1.06, 4.77, $p < 0.001$), and shift duties ($M.D. = 2.24\%$, $t = 2.87$, 95% CI = 0.22, 4.26, $p = 0.023$). These observations may be indirectly related to the work volume in each of the schedules. There was a significant difference in the WRQoL across workloads ($F [3, 1571] =$

7.739, $p < 0.001$); Games-Howell post hoc test showed that WRQoL that worked less than 20 hours per week ($M.D. = 5.32\%$, $t = 3.55$, 95% CI = 1.38, 9.52, $p = 0.04$), 20 to 40 hours ($M.D. = 2.89\%$, $t = 3.96$, 95% CI = 1.00, 4.78, $p = 0.001$), and 41 to 60 hours weekly reported significantly higher WRQoL than their counterparts that worked above 60 hours weekly ($M.D. = 2.37\%$, $t = 3.89$, 95% CI = 0.56, 4.18, $p = 0.004$).

Table 7 Response distribution on Work-Related Quality of Life (WRQoL) scale (n = 1574)

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean (Median)
	1 <i>f</i> (%)	2 <i>f</i> (%)	3 <i>f</i> (%)	4 <i>f</i> (%)	5 <i>f</i> (%)	
I have a clear set of goals and aims to enable me to do my job	10 (0.6)	45 (2.8)	169 (10.7)	974 (61.6)	376 (23.8)	4.1 (4)
I feel able to voice opinions and influence changes in my area of work	67 (4.2)	206 (13.0)	382 (24.2)	731 (46.3)	188 (11.9)	3.5 (4)
I have the opportunity to use my abilities at work	12 (0.8)	57 (3.6)	233 (14.7)	949 (60.1)	323 (20.4)	4 (4)
I feel well at the moment	23 (1.5)	69 (4.4)	207 (13.1)	866 (54.8)	409 (25.9)	4 (4)
My employer provides adequate facilities and flexibility for me to fit work in around my family life	196 (12.4)	472 (29.9)	492 (31.1)	370 (23.4)	44 (2.8)	2.7 (3)
My current working hours / patterns suit my personal circumstances	133 (8.4)	364 (23.0)	389 (24.6)	595 (37.7)	93 (5.9)	3.1 (3)
*I often feel under pressure at work	115 (7.3)	490 (31.0)	419 (26.5)	455 (28.8)	95 (6.0)	3.1 (3)
When I have done a good job, it is acknowledged by my line manager	78 (4.9)	251 (15.9)	473 (29.9)	657 (41.6)	115 (7.3)	3.3 (3)
*Recently, I have been feeling unhappy and depressed	135 (8.5)	326 (20.6)	270 (17.1)	523 (33.1)	320 (20.3)	3.4 (4)
I am satisfied with my life	39 (2.5)	127 (8.0)	372 (23.5)	775 (49.1)	261 (16.5)	3.7 (4)
I am encouraged to develop new skills	36 (2.3)	182 (11.5)	284 (18)	769 (48.7)	303 (19.2)	3.7 (4)
I am involved in decisions that affect me in my own area of work	114 (7.2)	321 (20.3)	457 (28.9)	569 (36)	113 (7.2)	3.2 (3)
My employer provides me with what I need to do my job effectively	212 (13.4)	523 (33.1)	458 (29.0)	342 (21.6)	39 (2.5)	2.7 (3)
My line manager actively promotes flexible working hours / patterns	139 (8.8)	384 (24.3)	455 (28.8)	540 (34.2)	56 (3.5)	3.0 (3)
In most ways my life is close to ideal	65 (4.1)	269 (17)	492 (31.1)	690 (43.7)	58 (3.7)	3.3 (3)

I work in a safe environment	117 (7.4)	336 (21.3)	466 (29.5)	588 (37.2)	67 (4.2)	3.1 (3)
Generally, things work out well for me	19 (1.2)	115 (7.3)	367 (23.2)	889 (56.3)	184 (11.6)	3.7 (4)
I am satisfied with the career opportunities available for me here	116 (7.3)	355 (22.5)	390 (24.7)	565 (35.8)	148 (9.4)	3.2 (3)
*I often feel excessive levels of stress at work	153 (9.7)	541 (34.2)	375 (23.7)	419 (26.5)	86 (5.4)	3.2 (3)
I am satisfied with the training I receive in order to perform my present job	78 (4.9)	286 (18.1)	352 (22.3)	677 (42.8)	181 (11.5)	3.4 (4)
Recently, I have been feeling reasonably happy all things considered	40 (2.5)	220 (13.9)	546 (34.6)	674 (42.7)	94 (5.9)	3.4 (3)
The working conditions are satisfactory	141 (8.9)	549 (34.7)	497 (31.5)	348 (22.0)	39 (2.5)	2.7 (3)
I am involved in decisions that affect members of the public in my area of work	123 (7.8)	414 (26.2)	427 (27.0)	524 (33.2)	86 (5.4)	3.0 (3)
I am satisfied with the overall quality of my working life	96 (6.1)	383 (24.2)	473 (29.9)	545 (34.5)	77 (4.9)	3.1 (3)

These were responses to the question “To what extent do you agree with the following items?” On a scale from 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. Total respondent’s score was converted to percentages (expected range, $24 - 120 \times 0.833 \approx 20 - 100\%$). The present respondents’ scores ranged from 26.67 to 94.17%, mean = 65.73, median = 66.67, and SD = 10.52.

Quality of care (QoC)

Participants' reported quality of clinical care were shown in Table 8. On a scale of 0 (never) to 5 (always), the participants reported their levels of person-centred care (12 items) and discordant care (10 items). Many of the participants ($n = 1288$, 81.5%) reported that they always or frequently observed progress in their patients, 1267 (80.2%) provided high-quality clinical services, 1340 (84.8%) felt they were compassionate, 1289 (81.6%) involved patients in decisions about their care, but only 877 (55.5%) went beyond the normal call of duty to support patients. Responses to items on discordant care (Table 8) showed that "always or frequently", some participants ($n = 257$, 16.3%) had conflicts with patients, 307 (19.4%) delayed certain patients, 324 (20.5%) treated certain patients with bias, 577 (36.5%) exhibited governmentality, while 271 (17.2%) felt irritable interacting with patients. The mean (SD) participants' QoC was 70.14% (12.77), the expected cumulative score was between 0 and 100%.

Table 4 shows the levels of QoC across the demographics using 75% as the cut off mark for good quality of care. Men reported poorer QoC (68.2%) than women (55.2%). HCWs aged 30 to 39 years (66.0%) and those who had practiced for 3 to 5 years (66.2%), bachelor's degree holders (61.6%), radiographers (71.7%), part time workers (74.9%), staff on permanent morning and call duties (63.1%), and personnel that put in between 20 to 40 work hours weekly (63.5%) reported poorer QoC than their counterparts. Table 5 showed significant difference in QoC across categories of all demographic variables analysed in this study. Significant gender difference in QoC was observed via independent t-test ($t = 5.250$, $p < 0.001$). One-way ANOVA showed a statistically significant difference in the QoC across age groups, $F(4, 1500) = 6.702$, $p < 0.001$. The Tukey post-hoc analysis confirmed that participants aged 50 to 59 years reported a significantly higher QoC than younger age groups 30 to 39 years ($M.D. = 4.21\%$, $t = 4.17$, 95% CI

= 1.45, 6.98, $p < 0.001$), and 20 to 29 years ($M.D. = 3.53\%$, $t = 3.12$, 95% CI = 0.43, 6.64, $p = 0.017$). Similarly, participants aged 40 to 49 years reported a significantly higher QoC than their counterparts aged 30 to 39 years ($M.D. = 3.03\%$, $t = 3.61$, 95% CI = 0.75, 5.32, $p = 0.003$). There was a significant difference in the QoC across practice years ($F [3, 1570] = 13.094$, $p < 0.001$); Games-Howell post hoc test showed that those who had practiced for 11 years and above reported higher QoC than those who had practice 6 to 10 years ($M.D. = 3.61\%$, $t = 3.88$, 95% CI = 1.22, 5.99, $p = 0.001$), 3 to 5 years ($M.D. = 5.18\%$, $t = 5.69$, 95% CI = 2.83, 7.53, $p < 0.001$) and 0 to 2 years ($M.D. = 3.84\%$, $t = 4.92$, 95% CI = 1.82, 5.85, $p < 0.001$). There was no significant difference between other pairs. Furthermore, there was a significant difference in the QoC across education levels ($F [2, 1566] = 6.945$, $p = 0.001$); Games-Howell post hoc test showed that staff with professional diploma ($M.D. = 3.78\%$, $t = 3.05$, 95% CI = 0.85, 6.72, $p = 0.007$), or postgraduate degree ($M.D. = 1.82\%$, $t = 2.53$, 95% CI = 0.13, 3.51, $p = 0.032$) reported higher QoC than their counterparts with bachelor (entry-level) degree.

There was a significant difference in the QoC across designations ($F [6, 1562] = 7.621$, $p < 0.001$); Games-Howell post hoc test showed that medical practitioners reported a significantly lower QoC than nurses ($M.D. = -4.56\%$, $t = -6.00$, 95% CI = -6.80, -2.31, $p < 0.001$), physiotherapists ($M.D. = -4.40\%$, $t = -3.66$, 95% CI = -7.72, -1.09, $p = 0.002$), medical laboratory scientist ($M.D. = -6.23\%$, $t = -5.93$, 95% CI = -9.37, -3.09, $p < 0.001$) and occupational therapists ($M.D. = -9.43\%$, $t = -4.67$, 95% CI = -16.70, -2.16, $p = 0.01$). Similarly, pharmacist reported lower QoC than nurses ($M.D. = -5.27\%$, $t = -4.62$, 95% CI = -8.66, -1.88, $p < 0.001$), physiotherapists ($M.D. = -5.12\%$, $t = -3.66$, 95% CI = -9.28, -0.96, $p = 0.006$), medical laboratory scientist ($M.D. = -6.95\%$, $t = -5.15$, 95% CI = -10.97, -2.92, $p < 0.001$) and occupational therapists ($M.D. = -10.15\%$, $t = -4.61$, 95% CI = -17.61, -2.69, $p = 0.005$).

There was a significant difference in the QoC across appointment types ($F [2, 1574] = 18.171, p < 0.001$); such that those with full time appointment reported significantly higher QoC than their counterparts on part time ($M.D. = 5.93\%$, $t = 6.03$, $95\% \text{ CI} = 3.62, 8.24$, $p < 0.001$). There was a significant difference in QoC across the work schedules ($F [3, 1572] = 3.000, p = 0.003$); Tukey post hoc showed that HCWs on shift duty only reported significantly higher QoC than those who work permanent morning duties ($M.D. = 2.78\%$, $t = 2.65$, $95\% \text{ CI} = 0.84, 5.48$, $p = 0.04$). There was no significant difference in QoC between other pairs of work schedule. Similarly, there was a significant difference in the QoC across workloads ($F [3, 1571] = 2.825, p = 0.038$); Games-Howell post hoc test showed that HCWs who worked 41 to 60 hours weekly reported significantly higher QoC than their counterparts that worked 20 to 40 hours weekly ($M.D. = 2.20\%$, $t = 2.68$, $95\% \text{ CI} = 0.10, 4.30$, $p = 0.036$).

Table 8 Response distribution on Clinician Quality of Care (QoC) scale (n = 1566)

Item	Never	Very rarely	Rarely	Occasionally	Very frequent	Always	Mean (Median)
Person-centred care	0	1	2	3	4	5	
	<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)	
I saw positive progress in my clients/patients.	5 (0.3)	6 (0.4)	30 (1.9)	237 (15)	962 (60.9)	326 (20.6)	4.0 (4)
I feel I provided high quality services to clients/patients.	2 (0.1)	10 (0.6)	29 (1.8)	258 (16.3)	852 (53.9)	415 (26.3)	4.0 (4)
I felt connected to the clients/patients I am working with.	8 (0.5)	15 (0.9)	64 (4.1)	311 (19.7)	776 (49.1)	392 (24.8)	3.9 (4)
I felt like I was able to really show compassion to a patient.	2 (0.1)	9 (0.6)	26 (1.6)	189 (12)	859 (54.4)	481 (30.4)	4.1 (4)
I had space in my schedule to address patient emergencies.	16 (1)	25 (1.6)	96 (6.1)	450 (28.5)	655 (41.5)	324 (20.5)	3.7 (4)
I helped a client/patient develop a safety plan to address potentially harmful behaviour or situations.	12 (0.8)	33 (2.1)	110 (7)	456 (28.9)	664 (42)	291 (18.4)	3.7 (4)
I was able to support a client's/patient's action step toward a personal goal.	21 (1.3)	32 (2.0)	117 (7.4)	486 (30.8)	645 (40.8)	265 (16.8)	3.6 (4)
I involved clients/patients in decisions about their care.	9 (0.6)	9 (0.6)	46 (2.9)	213 (13.5)	744 (47.1)	545 (34.5)	4.1 (4)
I spent extra time with a client/patient who needed support.	6 (0.4)	18 (1.1)	50 (3.2)	397 (25.1)	695 (44)	401 (25.4)	3.9 (4)
I was able to come up with a creative intervention to support a client/patient.	16 (1.0)	20 (1.3)	94 (5.9)	529 (33.5)	651 (41.2)	256 (16.2)	3.6 (4)
I went "above and beyond the normal call of duty" to support a client/patient.	10 (0.6)	28 (1.8)	106 (6.7)	545 (34.5)	611 (38.7)	266 (16.8)	3.6 (4)
I met my daily productivity expectations.	3 (0.2)	22 (1.4)	72 (4.6)	420 (26.6)	773 (48.9)	276 (17.5)	3.8 (4)

Discordant care							
I had conflicts with clients/patients.	338 (21.4)	501 (31.7)	279 (17.7)	191 (12.1)	180 (11.4)	77 (4.9)	1.8 (1)*
I made minor mistakes in my work (not likely to affect clients/patients).	148 (9.4)	580 (36.7)	330 (20.9)	263 (16.6)	190 (12)	55 (3.5)	2.0 (2)*
I took a long time responding to certain client/patient requests.	219 (13.9)	376 (23.8)	306 (19.4)	358 (22.7)	224 (14.2)	83 (5.3)	2.2 (2)*
I treated clients/patients differently because they are my favourites.	591 (37.4)	267 (16.9)	211 (13.4)	173 (10.9)	155 (9.8)	169 (10.7)	1.7 (1)*
I was usually directive with clients/patients (telling them what to do).	159 (10.1)	235 (14.9)	239 (15.1)	356 (22.5)	384 (24.3)	193 (12.2)	2.7 (3)*
I was irritable interacting with clients/patients.	605 (38.3)	368 (23.3)	195 (12.3)	127 (8.0)	121 (7.7)	150 (9.5)	1.5 (1)*
I missed appointments or meetings with clients/patients.	529 (33.5)	407 (25.8)	212 (13.4)	138 (8.7)	138 (8.7)	142 (9)	1.6 (1)*
I missed deadlines at work.	439 (27.8)	435 (27.5)	214 (13.5)	196 (12.4)	146 (9.2)	136 (8.6)	1.7 (1)*
I had significant distractions in my work with clients/patients.	381 (24.1)	422 (26.7)	267 (16.9)	226 (14.3)	156 (9.9)	114 (7.2)	1.8 (1)*
I was late for work.	248 (15.7)	465 (29.4)	296 (18.7)	316 (20)	176 (11.1)	65 (4.1)	1.9 (2)*

These were responses to the instruction “Please, indicate how frequently each item had occurred in the past six months” Where 0 = never, 1 = very rarely, 2 = rarely, 3 = occasionally, 4 = very frequently, 5 = always.

* Items were reverse coded during computation and inferential analyses.

Total respondent’s score was converted to percentages (expected range, 0 – 110 X 0.909 = 0 – 100%).

The present respondents’ scores ranged from 10.91 to 100%, mean = 70.14, median = 70.91, and SD = 12.76.

Correlation models

Pearson's correlation coefficient (r) was completed among the constructs WHO-QoL, PWI, WRQoL, and QoC (Table 9). There was a significant ($p < 0.001$) but weak positive correlation among WHO-QoL, PWI, and WRQoL, except for the PWI vs. WRQoL which showed a strong correlation ($r = 0.521$, $p < 0.001$). Analysing with continuous variables, WRQoL and PWI had a positive correlation with QoC while WHO-QoL had a negative coefficient ($r = -0.104$, $p < 0.001$). A follow up independent t-test analysis using (poor $<75\%$ and good $>75\%$) Qoc as grouping variables (Table 10) observed no significant difference in mean WHO-QoL between clinicians with poor or good QoC ($t = 1.102$, $p = 0.271$). However, clinicians classified under good QoC had significantly higher PWI ($t = 6.396$, $p < 0.001$) and WRQoL ($t = 8.575$, $p < 0.001$).

Table 9 Pearson's Correlation: among respondents' quality of life, wellbeing, work-related quality of life, quality of care.

Indexes	Personal wellbeing index	Quality of work-life	Quality of care
	<i>r</i> -statistic (N) p-value	<i>r</i> -statistic (N) p-value	<i>r</i> -statistic (N) p-value
WHO-Quality of life	0.266 (1575) <0.001*	0.212 (1570) <0.001*	-0.104 (1562) <0.001*
Personal wellbeing index	-	0.521 (1572) <0.001*	0.153 (1565) <0.001*
Quality of work-life	-	-	0.201 (1561) <0.001*

*Pearson's Correlation Coefficient (r) was significant at $p < 0.05$ (2-tailed test)

Table 10 Respondents' quality of life, wellbeing, work-related quality of life by quality of care

Parameter	Clinician Quality of Care		t-value	p-value
	Poor Mean (SD)	Good Mean (SD)		
Quality of Life	62.36(19.49)	61.11(23.77)	1.102	0.271
Personal Wellbeing Index	69.74 (14.30)	74.50(14.71)	-6.396	< 0.001*
Work-related Quality of Life	63.92 (9.80)	68.46(10.99)	-8.575	< 0.001*

*Independent samples t-test was significant at $p < 0.05$ (2-tailed test)

Regression models

This study utilized multivariate binary logistic regression and multiple linear regression using forward stepwise, and forward Wald stepwise data entry approaches, respectively. Multiple linear regression was first completed to determine the best predictors of WHO-QoL, PWI, WRQoL, and the QoC using the demographic variables and the measure of life quality and wellbeing. Afterwards, each of the four constructs was dichotomised into poor and good outcomes using the formula: $(\text{mean} + 0.5 \times \text{SD})$. This gave a cuff point for WHO-QoL = 70%, PWI = 75%, WRQoL = 70%, and QoC = 75%. Then binary logistic regression was completed for each construct to determine the predicting variables that could best classify HCWs as having poor or good QoL, PWI, WRQoL, and QoC. Observations were made on the model strength and factors that were included and excluded from the model via the multiple linear and binary logistic regression approaches.

Before the commencement of each regression analysis, the data were cleaned, diagnosed, and standardized. Where applicable, the issues of missing values, univariate and multivariate outliers, normality, linearity, and multicollinearity were sorted and fixed. Mahalanobis and Cooks distances were examined for multiple linear regression and binary logistic regression, respectively. Tolerance factors were reported along with the multiple linear regression.

Table 11 shows a multiple linear regression completed to determine the best set of demographics and wellbeing indexes that could predict the QoL of the participants. HCWs personal wellbeing ($\beta = 0.246$, $p < 0.001$) and work-related quality of life ($\beta = 0.119$, $p < 0.001$) had significant positive association with their health related QoL. However, clinicians with higher QoC tends to have lower WHO-QoL ($\beta = -0.166$, $p < 0.001$). This result corroborated the findings in Tables 9 and 10. It appears that some HCWs put a lot of effort into patients' care to the detriment of their own health

and QoL. The overall model fit was modest, $F(5, 1473) = 40.714$, however, the coefficient of determination R^2 could explain only 11.8% of the variance. The alternate model, forward Wald binary logistic regression (Table 12) showed that relative to other demographic categories, being a medical practitioner ($B = -0.763$, $p < 0.001$) and have worked over 11 years ($B = -0.645$, $p = 0.009$) have negative implication for HCWs QoL. Model summary: $\chi^2(17, N = 1567) = 256.12$, $p < 0.001$. Nagelkerke $R^2 = 21.3\%$. Overall prediction success was also modest at 69.8%, with 60.0% of people with good QoL correctly classified and 77.3% of poor QoL classified.

Table 11 Multiple Regression: the best set of predictors of (WHO) quality of life among respondents.

Predictor	Regression Coefficients (B)	Standardized Regression Coefficients (β)	Partial Correlation	p-value	Tolerance	Step
Personal wellbeing index	0.355	0.246	0.218	<0.001*	0.724	1
Clinician quality of care	-0.275	-0.166	-0.170	<0.001*	0.957	2
Work related quality of life	0.243	0.119	0.106	<0.001*	0.704	3
†Designation	0.652	0.046	0.049	0.062	0.987	4
Volume of work	-1.189	-0.045	-0.048	0.067	0.979	5
(Constant)	41.819	-	-	<0.001*	-	-

* = p-value < 0.05 is significant. †See Tables 2 and 3 for details.

Model Summary: $F(5, 1473) = 40.714, p < 0.001$; $R = 0.348$; adjusted $R^2 = 0.118$.

Table 12 Logistic Regression: Factors that best differentiate poor from good quality of life (WHO-QoL)

Predictors	Regression Coefficients (B)	Odds ratio (β)	Wald	P-value
Age (years)				
20 – 29 (reference)			9.507	0.050*
30 – 39	0.362	1.436	3.658	0.056
40 – 49	0.673	1.961	7.263	0.007*
50 – 59	0.877	2.403	8.706	0.003*
60 – 69	1.249	3.486	1.436	0.231
Gender (reference = female)				
Male	0.279	1.322	3.740	0.053
Years of practice				
0–2 (reference)			12.788	0.005*
3–5	0.181	1.199	1.009	0.315
6–10	-0.268	0.765	1.586	0.208
≥ 11	-0.645	0.525	6.827	0.009*
Designation				
Nurse (reference)			32.411	<0.001*
Medical practitioner	-0.763	0.466	20.401	<0.001*
Pharmacist	-0.298	0.743	1.826	0.177
Physiotherapist	0.159	1.172	0.452	0.501
Radiographer	-0.226	0.798	0.053	0.819
Medical lab. scientist	0.070	1.072	0.080	0.777
Occupational therapist	-0.560	0.571	0.597	0.440
Others	0.557	1.745	0.542	0.461
Personal Wellbeing	1.199	3.318	99.098	<0.001*
Work Related Quality of Life	0.671	1.957	29.812	<0.001*
Constant	-1.136	0.321	41.371	<0.001*

Approach: Forward Wald binary logistic regression. * = statistic is significant at $p < 0.05$.
 Model summary: $\chi^2 (17, N = 1567) = 256.12, p < 0.001$. Nagelkerke $R^2 = 21.3\%$. Overall prediction success was also modest at 69.8%, with 60.0% of people with good QoL correctly classified and 77.3% of poor QoL classified.

Multiple linear regression (Table 13) shows the best set of demographics, and QoL indexes that could predict the PWI of the participants. Work-related QoL ($\beta = 0.451$, $p < 0.001$), WHO-QoL ($\beta = 0.189$, $p < 0.001$), age ($\beta = 0.093$, $p < 0.001$), gender, ($\beta = -0.065$, $p < 0.003$), QoC ($\beta = 0.058$, $p < 0.01$), and designation ($\beta = -0.047$, $p < 0.035$) were predictive of HCWs' personal wellbeing. However, clinicians with higher QoC tends to have lower WHO-QoL ($\beta = -0.166$, $p < 0.001$). This result agreed with the findings in Tables 9 and 10, being a man and a professional other than a nurse diminishes the odds of a HCW having a good personal wellbeing. The overall model fit was moderate, $F(6, 1472) = 116.692$, $p < 0.001$. The model (R^2) could explain only 32% of the variance. The alternate model, forward Wald binary logistic regression (Table 14) showed that relative to other demographic categories, being between 50 to 59 years old ($B = 0.433$, $p = 0.037$), and having higher WRQoL ($B = 1.101$, $p < 0.001$), QoC ($B = 0.427$, $p < 0.001$) and WHO-QoL ($B = 1.218$, $p = 0.007$) were positive indicators of good personal wellbeing, while being a man ($B = -0.446$, $p < 0.001$) have negative implication for HCWs personal wellbeing. Model summary: $\chi^2(8, N = 1580) = 326.725$, $p < 0.001$. Nagelkerke $R^2 = 26.5\%$. Overall prediction success was good at 69.6%, with 62.5% of people with good personal wellbeing correctly classified and 75.5% of people classified under poor personal wellbeing.

Table 13 Multiple Regression: the best set of predictors of personal wellbeing among respondents.

Predictor	Regression Coefficients (B)	Standardized Regression Coefficients (β)	Partial Correlation	p-value	Tolerance	Step
Work related quality of life	0.635	0.451	0.458	<0.001*	0.882	1
Health related quality of life	0.131	0.189	0.215	<0.001*	0.923	2
Age (years)	0.146	0.093	0.108	<0.001*	0.932	3
Gender (being a man)	-1.972	-0.065	-0.076	0.003*	0.933	4
Clinician quality of care	0.067	0.058	0.067	0.010*	0.913	5
†Designation	-0.464	-0.047	-0.055	0.035*	0.922	6
(Constant)	15.150	-	-	<0.001*	-	-

* = p-value < 0.05 is significant. †See Tables 2 and 3 for details.

Model Summary: $F(6, 1472) = 116.692$, $p < 0.001$; $R = 0.568$; adjusted $R^2 = 0.320$.

Table 14 Logistic Regression: Factors that best classify health practitioners with good and poor personal wellbeing

Predictors	Regression Coefficients (B)	Odds ratio (β)	Wald	P-value
Age (years)				
20 – 29 (reference)			13.869	0.008*
30 – 39	-0.242	0.785	2.277	0.131
40 – 49	0.028	1.028	0.025	0.876
50 – 59	0.433	1.542	4.367	0.037*
60 – 69	0.221	1.247	0.048	0.826
Gender (reference = female)				
Male	-0.446	0.640	12.768	<0.001*
Work Related Quality of Life	1.101	3.007	79.627	<0.001*
Clinician Quality of Care	0.427	1.533	12.302	<0.001*
WHO-Quality of Life	1.218	3.380	104.708	0.007*
Constant	-1.146	0.318	56.099	<0.001*

Approach: Forward Wald binary logistic regression. * = statistic is significant at $p < 0.05$.
 Model summary: $\chi^2(8, N = 1580) = 326.725$, $p < 0.001$. Nagelkerke $R^2 = 26.5\%$. Overall prediction success was also modest at 69.6%, with 62.5% of people with good personal wellbeing correctly classified and 75.5% of people classified under poor personal wellbeing.

Multiple linear regression (Table 15) shows the best set of demographics, and QoL indexes that could predict the WRQoL of the participants. Personal wellbeing ($\beta = 0.457$, $p < 0.001$), QoC ($\beta = 0.166$, $p < 0.001$), education level ($\beta = 0.112$, $p < 0.001$), WHO-QoL, ($\beta = 0.114$, $p < 0.001$), designation ($\beta = 0.088$, $p = 0.001$), work schedule ($\beta = 0.078$, $p < 0.003$), and nature of appointment ($\beta = 0.081$, $p < 0.002$), and years in practice ($\beta = 0.056$, $p < 0.032$) were predictive of participants' WRQoL. However, clinicians with higher work volume tends to have lower WRQoL ($\beta = -0.077$, $p < 0.003$). This result agreed with the findings in Tables 9 and 10, working more than 40 hours per week increases the tendency of having a poor WRQoL. The overall model fit was moderate, $F(9, 1469) = 78.188$, $p < 0.001$. The model (adjusted R^2) could explain only 32% of the observed variance. The alternate model, forward Wald binary logistic regression (Table 16) showed that relative to other demographic categories, being between 50 to 59 years old ($B = 0.763$, $p < 0.001$), having a postgraduate degree ($B = 0.813$, $p = 0.002$) and having higher QoC ($B = 0.743$, $p < 0.001$), WHO-QoL ($B = 0.706$, $p < 0.001$) and PWI ($B = 1.115$, $p < 0.001$) were positive indicators of good WRQoL, while those who worked higher than 20 hours per week are relatively at higher risk of poor WRQoL than those who put in below 20 hours ($p < 0.01$). Model summary: $\chi^2(19, N = 1580) = 306.054$, $p < 0.001$. Nagelkerke $R^2 = 25.4\%$. Overall prediction success was good at 72.5%, with 55.5% of people with good WRQoL correctly classified and 83.0% of people classified under poor personal wellbeing.

Table 15 Multiple Regression: the best set of predictors of work-related quality of life among respondents.

Predictor	Regression Coefficients (B)	Standardized Regression Coefficients (β)	Partial Correlation	p-value	Tolerance	Step
Personal wellbeing	0.323	0.457	0.457	<0.001*	0.862	1
Clinician quality of care	0.117	0.166	0.166	<0.001*	0.926	2
Level of education	1.904	0.112	0.112	<0.001*	0.884	3
Health related quality of life	0.049	0.114	0.114	<0.001*	0.886	4
Work volume	-0.855	-0.077	-0.077	0.003*	0.916	5
Designation	0.531	0.088	0.088	0.001*	0.915	6
Work schedule	0.626	0.078	0.078	0.003*	0.919	7
Nature of appointment	2.027	0.081	0.081	0.002*	0.903	8
Years in practice	0.436	0.056	0.056	0.032*	0.799	9
(Constant)	25.678	-	-	<0.001*	-	-

* = p-value < 0.05 is significant.

Model Summary: $F(9, 1469) = 78.188, p < 0.001$; $R = 0.569$; adjusted $R^2 = 0.320$.

Table 16. Logistic Regression: Factors that best classify health practitioners with good and poor work-related quality of life.

Predictors	Regression Coefficients (B)	Odds ratio (β)	Wald	P-value
Age (years)				
20 – 29 (reference)			14.892	0.005*
30 – 39	0.234	1.264	1.844	0.175
40 – 49	0.141	1.151	0.515	0.473
50 – 59	0.763	2.144	11.164	<0.001*
60 – 69	1.826	6.211	2.251	0.134
Education level				
National Diploma (reference)			12.087	0.002*
Bachelor	0.360	1.433	2.373	0.123
Masters or Ph.D.	0.813	2.255	9.491	0.002*
Designation				
Nurse (reference)			13.474	0.061*
Medical practitioner	-0.108	0.898	0.426	0.514
Pharmacist	0.379	1.461	2.815	0.093
Physiotherapist	-0.350	0.705	1.947	0.163
Radiographer	0.877	2.404	0.688	0.407
Medical lab. scientist	0.210	1.233	0.706	0.401
Occupational therapist	-1.968	0.140	3.189	0.074
Others	0.839	2.315	1.385	0.239
Work volume				
< 20 (reference)			11.067	0.011*
20-40	-0.771	0.463	6.232	0.013*
41-60	-0.734	0.480	5.971	0.015*
> 60	-1.049	0.350	10.647	0.001*
Clinician Quality of Care	0.743	2.103	35.805	<0.001*
WHO-Quality of Life	0.706	2.025	31.946	<0.001*
Personal Wellbeing	1.115	3.048	79.071	<0.001*
Constant	-1.572	0.208	16.678	<0.001*

Approach: Forward Wald binary logistic regression. * = statistic is significant at $p < 0.05$.
 Model summary: $\chi^2 (19, N = 1580) = 306.054$, $p < 0.001$. Nagelkerke $R^2 = 25.4\%$. Overall prediction success was also modest at 72.5%, with 55.5% of people with good personal wellbeing correctly classified and 83.0% of people classified under poor personal wellbeing.

Table 17 shows the best set of demographics and wellbeing indexes that could predict the participants' QoC via a multiple linear regression. Participants' quality of work life ($\beta = 0.193$, $p < 0.001$) work volume ($\beta = 0.079$, $p = 0.003$), age ($\beta = 0.089$, $p = 0.001$), personal wellbeing ($\beta = 0.070$, $p = 0.019$) and designation ($\beta = 0.056$, $p = 0.031$) had significant positive association with their self reported quality of care. The overall model fit was modest, $F(10, 1468) = 18.799$, however, the coefficient of determination R^2 could explain only 10.7% of the variance. The forward Wald binary logistic regression (Table 18) showed that relative to other demographic subcategories, being a man ($B = -0.333$, $p < 0.018$), medical practitioner ($B = -0.486$, $p < 0.004$) or pharmacist ($B = -0.751$, $p < 0.001$), and part time employee ($B = -0.466$, $p = 0.019$) increases the tendency of providing lower quality of care. Model summary: $\chi^2(19, N = 1561) = 149.198$, $p < 0.001$. Nagelkerke $R^2 = 13.0\%$. Overall prediction success was also modest at 65.4%, with 39.0% of people with good QoC correctly classified and 82.5% of poor QoL classified.

Table 17 Multiple Regression: the best set of predictors of quality of care among respondents.

Predictor	Regression Coefficients (B)	Standardized Regression Coefficients (β)	Partial Correlation	p-value	Tolerance	Step
Work related quality of life	0.237	0.193	0.169	<0.001*	0.696	1
Health related quality of life	-0.104	-0.173	-0.172	<0.001*	0.901	2
Nature of appointment	-3.621	-0.103	-0.104	<0.001*	0.911	3
Gender	-3.198	-0.122	-0.119	<0.001*	0.863	4
Work volume	1.245	0.079	0.078	0.003*	0.881	5
Age (years)	0.122	0.089	0.085	0.001*	0.811	6
Work schedule	-0.692	-0.061	-0.061	0.018*	0.914	7
Personal wellbeing	0.061	0.070	0.061	0.019*	0.678	8
Designation	0.482	0.056	0.056	0.031*	0.885	9
Education level	-1.291	-0.054	-0.054	0.040*	0.862	10
(Constant)	59.826	-	-	<0.001*	-	-

* = p-value < 0.05 is significant

Model Summary: $F(10, 1468) = 18.799, p < 0.001; R = 0.337; \text{adjusted } R^2 = 0.107.$

Table 18 Logistic regression: Factors that best classify health practitioners with good and poor quality of care.

Predictors	Regression Coefficients (B)	Odds ratio (β)	Wald	P-value
Age (years)				
20 – 29 (reference)			8.240	0.083
30 – 39	-0.209	0.811	1.668	0.196
40 – 49	0.142	1.153	0.643	0.423
50 – 59	-0.183	0.833	0.773	0.379
60 – 69	1.033	2.809	1.210	0.271
Gender (reference = female)				
Male	-0.333	0.717	5.571	0.018*
Designation				
Nurse (reference)			24.921	0.001*
Medical practitioner	-0.486	0.615	8.520	0.004*
Pharmacist	-0.751	0.472	11.030	0.001*
Physiotherapist	0.080	1.083	0.124	0.725
Radiographer	-0.868	0.420	0.582	0.446
Medical lab. scientist	0.039	1.039	0.027	0.870
Occupational therapist	1.237	3.446	2.940	0.086
Others	-0.687	0.503	0.912	0.340
Nature of appointment				
Full time (reference)			7.232	.027*
Part time	-0.466	0.628	5.527	.019*
Casual	0.818	2.266	1.367	0.242
Work volume				
< 20 (reference)			12.918	0.005*
20-40	0.103	1.109	0.122	0.727
41-60	0.498	1.646	2.994	0.084
> 60	0.637	1.891	4.242	0.039*
Personal Wellbeing	0.355	1.427	8.833	0.003*
Work-related Quality of Life	0.726	2.066	34.932	<0.001*
Constant	-0.820	0.441	6.844	0.009*

Approach: Forward Wald binary logistic regression. * = statistic is significant at $p < 0.05$.

Model summary: $\chi^2 (19, N = 1580) = 149.198, p < 0.001$. Nagelkerke $R^2 = 13.0\%$. Overall prediction success was modest at 65.4%, with 39.0% of people providing good quality of care correctly classified and 82.5% of people classified as providing poor quality of care.

Psychometric Analysis of the Instrument

We obtained new psychometric properties of the combined instrument using Intra-Class Correlation Coefficient and Cronbach alpha. Table 19 shows that the domain items were highly consistent and moderately reliable. The interclass correlation coefficient (Cronbach alpha) for the domains were: WHO-QoL = 0.678 (0.913), PWI = 0.534 (0.902), WRQoL = 0.248 (0.888), and CQoC = 0.235 (0.871).

We also completed an exploratory factor analysis (Maximum Likelihood with Varimax-orthogonal rotation) to confirm the domains in which individual items of the instrument load. Issues of communality and multicollinearity were assessed. Maximum likelihood estimation procedures were used to estimate the coefficients. The extracted variances assessed on a rotated factor matrix (Appendix C) showed that the questionnaire items belong to five distinct domains: WHO-QoL loaded 5/5 items (at factor 5), PWI loaded 9/8 items (at factor 3), WRQoL loaded 15/24 items (at factors 2), person-centred QoC = 12/12 items (at factors 4), and discordant QoC loaded 10/10 (at factor 1). The cumulative variances explained was 44.23%: discordant QoC = 10.74%, WRQoL = 10.73%, PWI = 9.03%, person-centred QoC = 8.01%, and WHO-QoL = 5.72%. Chi-square goodness of fit for CFA was $\chi^2(1426) = 6175.22$, $p < 0.001$ Kaiser-Meyer-Olkin Measure of Sampling Adequacy was greater than 0.9. The resultant Bartlett's Test of Sphericity (Approx. Chi-Square) were significant, $p < 0.001$.

Table 19 Instrument's psychometric properties.

Instrument domain	Number of items	Cronbach's alpha	p-value	Interclass Correlation Coefficient	p-value
WHO-Quality of life	5	0.913	<0.001*	0.679	<0.001*
Personal wellbeing index	8	0.902	<0.001*	0.534	<0.001*
Work-related quality of life	24	0.888	<0.001*	0.248	<0.001*
Clinician quality of care	22	0.871	<0.001*	0.235	<0.001*

* = p-value < 0.05 is significant

Figure 1 shows the structural equation diagram for path analysis of associations between person-centred and discordant care with QoL, PWI, and WRQoL scores. There was a significant association between person-centred care and WRQoL ($\beta = 0.25$, $p < 0.001$), and PWI ($\beta = 1.5$, $p < 0.001$), and discordant care and PWI ($\beta = -0.08$, $p = 0.01$). All the covariances paths had significant association ($p < 0.001$). Although the sample size was large making Chi-square goodness of fit to be significant ($\chi^2[1, N = 1558] = 5.38$, $p = 0.02$), the model modestly fitted the data, CFI = 0.995, RMSEA = 0.053.

Structural equation model of each domain was also completed the diagrams were supplied in Appendix D. The model fit for the QoL domain was very good, $\chi^2[2, N = 1558] = 1.45$, $p = 0.484$, CFI = 1.0, RMSEA = 0.0. Error estimates for item 5 significantly correlated with items 4 ($\beta = 0.22$, $p < 0.001$), and 3 ($\beta = 0.09$, $p = 0.002$). The error estimate for items 4 and 2 correlated significantly ($\beta = 0.25$, $p < 0.001$). Similarly, the model fit for the PWI domain was very good, $\chi^2[2, N = 1558] = 1.45$, $p = 0.484$, CFI = 1.0, and RMSEA = 0.0. Notably, the tenth item of WRQoL correlated significantly with the PWI domain ($\beta = 0.34$, $p < 0.001$). However, the Chi-square goodness of fit for the WRQoL domain was poor, $\chi^2[49, N = 1558] = 91.04$, $p < 0.001$, CFI = 0.995, and RMSEA = 0.023. Similarly, the Chi-square goodness of fit for the CoC domain was poor, $\chi^2[157, N = 1558] = 286.73$, $p < 0.001$, CFI = 0.993, and RMSEA = 0.023.

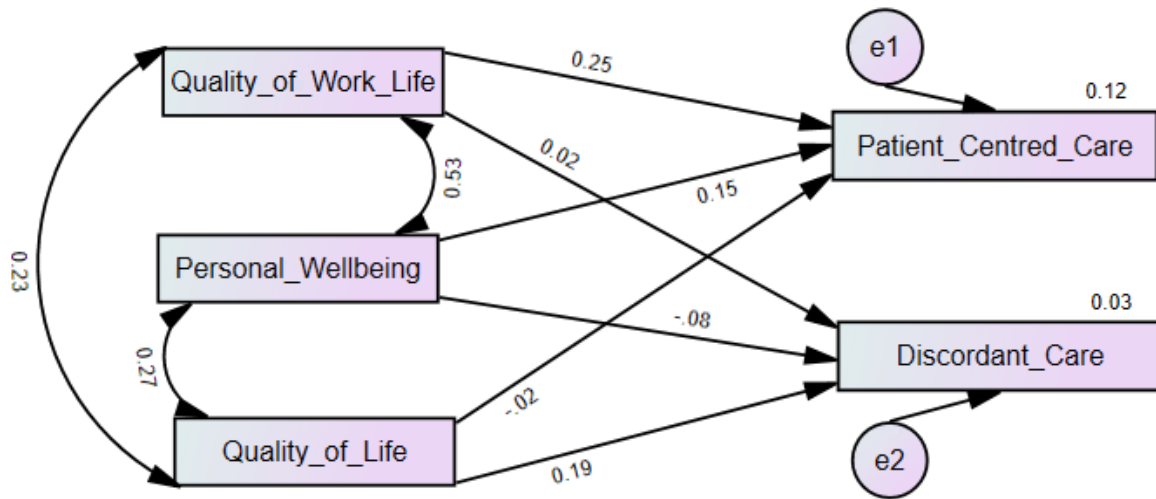


Figure 3 Path diagram showing the standardized regression weight of association between the constructs.

Qualitative Analysis

Following the qualitative analysis, we reached a consensus on the emergence of two main themes: (i) HCWs' perception about their wellbeing (QoL, PWI, and WRQoL), and (ii) HCWs' perception about the QoC they rendered. Appendix E is the thematic tree derived from the focus group discussions, while Appendix F is the word frequency tables.

1. *Health care workers' wellbeing (QoL, PWI, and WRQoL)*

Personal wellbeing and quality of life

When asked for their perspectives on HCWs' wellbeing and quality of life, discussants' responses were situated into two categories: physical and psycho-emotional wellbeing.

Some of the excerpts that described physical wellbeing are:

"There are other dimensions to it [wellbeing], even psychologically, emotionally and when we are now talking about, personal wellbeing in relation to what we are discussing, even the ergonomic implication of your workplace, your workstation, and how it eventually impacts on your physical wellbeing ... a good number of times, you end up with certain symptoms that you have to manage."

(Professor of Surgery, UCH)

"And even if the environment is also not conducive in terms of when we look at the chair, sitting, you know, you talk about ergonomics, sitting arrangement, back pain for the academics and things like that, this affects it too, the workspace will affect our physical health." (Consultant Psychiatrist,

OAUTHC)

Psychological wellbeing: HCWs' can have psychological and emotional disturbances when working in frustrating environments (Figure 4). Some examples of satiations such as unstable water supply, scarcity of hospital consumables, and most importantly interruption of power during medical procedures can frustrate a health professional.

“Then talking about psychologically, you leave home, I'm going to work, I have this target, I want to do this today, I want to do that today. Sometimes, the most annoying part, maybe as you're coming in along the corridor, you see the light [electricity], and as you're just entering the door of your office like this, the light goes off which means certain plans are already distracted, you can't do what you have planned. And already psychologically, it makes you down, even emotionally, you get frustrated and things. So all these have impacted on me in the past.” (Professor of Surgery, UCH)

“At times the health care workers start contributing to be able to save life, this is very common in my unit. We need to save lives [of indigent patients] we need to provide for them. Like today now we've been contributing [money]. It's psychological torture for the care worker, you know what to do? You want to render the service but you are incapacitated.” (Assistant Director Nursing, FMC)

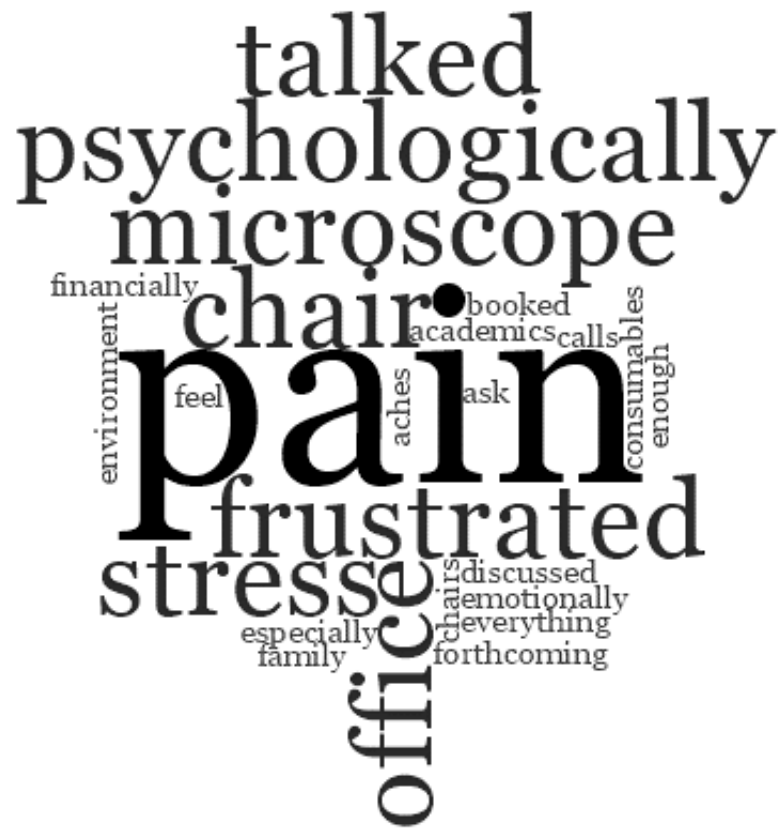


Figure 4. Word cloud showing dimensions of quality of life and personal wellbeing

Participants' Quality of work-life

The participants from all centers discussed extensively their quality of work-life, the following were determinative of their quality of work-life perceptions: physical infrastructure and environment, salaries and rewards, promotion, and professional training or development.

Physical structures and environments.

Physical infrastructure and hospital environment: often the HCWs raised issues about lack of office space and furniture, the inadequacy of the night call rooms and staff lounge, and insects and rodent-infested environment. The most remarkable quotes were:

“Like everybody has said, we are all in the same boat, as an assistant director in the laboratory, I do not have any office too. So aside from offices, like my colleagues said, basically, you come to work, there are things expected of you, we want to attend to our patients.” (Medical Lab Scientist, UCH)

“Apart from that, mosquitoes are always coming in because it's close to the gutter, so mosquitoes we just come and your legs would bite you, you know you're treating patient, you're always beating your legs, so I was always having malaria maybe every month or every two months. The people who do night too, we have to sleep to put whatever maybe mat or whatever and sleep.” (Deputy Director Physiotherapy, FMC)

Poor salary and incentives: discussants believed that the reward system in Nigeria health care is inadequate, monthly hazard allowance was as low as ₦5000 (\$ 15). Omenka, et al (2020) suggested that poor remuneration was one of the major reasons Nigerian health care workers were migrating to the UK and USA at such an alarming rate.

“So, and then to me as a person, that I'm able to feel fulfilled, happy and then have a financial reward for my activities that the financial reward is commensurate to my input.” (Consultant Anesthesiologist, UCH)

“Okay, let's look at inadequate salary. Salary. So, if you have you have to get this or say most of these things are not even provided in the hospitals like my nurse talked about you want to get anti-malaria, you have to come to get it on your own, and the money is not just there. It's not enough, you can imagine ₦5000 for hazard allowance in hospital sector with.” (Director Nursing, OAUTHC)

Delayed promotions: Promotion of HCWs in Nigeria is statutory, tenured, and regimented. However, sometimes authorities stagnate health professionals by delaying promotion interviews, this brings a lot of discontent with work life. Opeke et al (2019) opined that Nigeria HCWs emigrate from the country due to poor motivation.

“I want to talk about my own personal experience now, my last promotion in OOUTH was in 2012. This is 2021, under normal circumstances in nursing we have a dichotomy, go to university, go to the school of nursing [SON], we have that problem. So like they expect that if you are the SON type you should go to the university which I have done, my BSc, my master's everything you just keep reading and they're keeping the certificate for you, nothing is being done. And those educated courses you understand, degree, the courses like that, you bring it they'll tell you are welcome. So when you come back they welcome you and keep the certificate kit for you. Like the salary, I was earning in 2012. That's what I'm still learning and we are expected to give quality care, well I don't know how I'm going to do that. Because I'm not happy. No promotion, nothing.” (Chief Nursing Officer 1, OOUTH)

Training and development: Participants believed that the world is evolving and there is a need to go for training and professional development. A participant narrated how he was turned down anytime the chance for professional development comes up. Another participant said he was at one

point threatened to lose his job if he continues his PhD program. Onyeso et al (2020) reported that in-service and continuing professional education was mandatory for the annual renewal of the practicing license of some Nigerian HCWs.

“But why I personally was embarking on a Ph. D program, we have to be called to the management level. And we had to be given a threat to either stop the program or lose our job. And because I was just at that time bringing up a young family, I had to stop the program, the Ph. D program, to actually stay on the job. ... So, if there are opportunities that are given to staff to actually embark on postgraduate degrees, it has a lot of impact on their health-related quality of life, and what they can actually give back to the system and the patient.” (Deputy Director Physiotherapy, OAUTHC)

2. Discussants' perception about the QoC they rendered

Health care workers' understanding of the term QoC

The discussions evolved an important dimension to the concept of QoC. Discussant posited that not only a desired patient experience and patient outcome is required, but HCWs' themselves also desire to be satisfied with the milieu and extent of care they were able to provide. Four discussants two each from FMCA and OAUTHC described QoC as a kind of care focused on the satisfaction of both the patient and the healthcare provider. This issue points back to caregivers' wellbeing and job satisfaction.

"In my own opinion, I can describe quality of care to mean a kind of care I give such that I as a physiotherapist is satisfied, and my client also feels I have done the best I can in my capacity. So, the quality of care is perhaps related to both the career as well as the caregiver. So, in my opinion, it stems from both ends, but as it relates to me as a health care provider, I can also say that quality of care could mean my own competence to be able to do what I'm supposed to do in that particular situation - how quality and how qualitative it is and how good it is – and also the satisfaction of the client." (Deputy Director Physiotherapy, FMCA)

"Well, for quality of care as we have said, there is a standard, there's a minimum requirement that should be given to patients. So what comes to our mind is, has it been achieved? Has the environment and the equipment, and the personnel, are we equipped to offer that quality of care. And is everything actually okay with the caregiver, to provide that quality of care? To me, that is very important." (Consultant Dentist, OAUTHC).

Other discussants defined QoC as the overall working conditions of the healthcare system centered on the patient outcome.

"When you are talking about quality, like in my own perspective, like we do in nursing practice, we want to talk about the patient-centered care. A care that the patient would appreciate." (Chief Nursing Officer, OOUTH)

Measure of QoC: Discussants alluded to some of the WHO (2018) parameters for QoC, codes such as timely, efficient, excellent, and equitable treatment emerged. In the following excerpts, two discussants from FMCA and OAUTHC stated that QoC has to be timely, efficient, excellent and equitable.

“I’d like to add that it also has to do with efficiency, making sure that the quality of life of individuals improved because that is what quality care is. The goal is to improve their quality of life.” (Deputy Director Physiotherapy, FMCA).

“When you are talking about quality of care, I want to say care that is quality, valuable, worth the price, the care that is safe, that is timely, that you give at an appropriate time.” (Chief Nursing Officer, OOUTH)

Dimensions of QoC: Some of the attributes of QoC are standard, right, timely, and equitable delivery of care (Figure 5), some discussants emphasized the importance of early diagnosis and prompt treatment of patients.

“When we talk about the quality of care, we are talking about a group, I will rather say a combination of factors that makes the patient have a high level of satisfaction. Number one, early diagnosis to be able to make your diagnosis, prompt treatment. One, have short waiting time, be attended to on time, make the diagnosis early, get treatment on time, short hospital stays and then have a high level of satisfaction both physically and psychologically.” (Professor of Medicine, OAUTHC).

Other discussants highlighted the importance of equity and fairness in healthcare delivery.

“I think it should also be equitable, there should be equality that’s what I want to add.” (Senior Medical Lab Scientist, OOUTH).



Figure 5. Word cloud showing dimensions of quality of care

The status of QoC across the study locations

When queried on actions that entailed QoC from the provider's perspective, the majority of the discussants across the four hospitals expressed they had not been given enough resources to provide quality care. The Nigerian healthcare sector is faced with a perennial crisis occasioned by infrastructural decay, inadequate funding, and poor well-being of the health care workers (Adeloye et al., 2017). Although all the participants are knowledgeable about quality care, in practice, the majority confirmed they had not been able to provide it to their patients. The excerpts were:

"Actually, like we said earlier on, we know the definition of quality of care, we are talking about the care that is timely, safe, efficient, equitable and is patient centered. Like in our own case now ... you understand, like if I want to conclude in OOUTH well, we are not yet giving quality care."

(Chief Nursing Officer, OOUTH)

"There was a time, we have to be looking for gloves, and we're looking for face masks, it affects our efficiency too. A procedure you are supposed to spend maybe 30 minutes or one hour, you first use the first 20 minutes for material sourcing like face masks. So you have to start fast thinking of what to improvise in that aspect. So the material consumables are limiting us. The facility is not available." (Consultant Pediatric Dentist, FMCA)

"... Now there was a time that I had a patient, personal patient on the ward, the workload on nurses is too much, not only I as a doctor. Two nurses taking care of 24, 30 patients cannot be acceptable."

(Medical Consultant, OOUTH)

Limitations to delivery of quality care

Discussants identified some factors that limit their ability to deliver good QoC including poor working environment, understaffing, inadequate supply of hospital consumables, and ineffective health insurance scheme.

A safe and conducive environment is paramount to desirable patient and clinician experiences, good patient outcomes and a better quality of care (Adeloye et al., 2017). The discussants said:

“Let me first start with the fact that to get quality of care by any patient, the patient actually will need a conducive environment to ensure that the quality is given. It is not only for the patient but for the caregiver. So, in one way or the other when the infrastructure is deficient [like in our case] both the caregiver and the patient suffers. The patient in the sense that they may not be able to get the best.” (Deputy Director MLS, FMC)

Another participant echoed a similar view:

“Like participant two rightly said I think the safety, being time-bound, being efficient about it, having a good environment to work and also available facilities.” (Senior Physiotherapist, OOUTH)

Understaffing: From all the centers, discussants lamented the challenges of understaffing of various hospitals as a major bottleneck to delivering quality care to patients, this finding agreed with Opeke et al (2019) who stated that poor motivation and shortage of staff is taking a toll on Nigerian health care system.

“We don’t have personnel; we are just two. I am just coming from the eye clinic. We are just two... I have been disturbing her [the Director] for the past three weeks to give us somebody at least our clinic days to give us someone just two of us in the clinic, so I don’t know what could be done.” (Chief Nursing Officer, OOUTH)

“Okay, for instance now, as a critical care physician, and Anesthesiologist, it shouldn't be me that should be the first to see a patient because when I see a patient first, I am targeting what I'm going to do, but when the junior one comes first, we try to comb everywhere. And in combing everywhere I will look at all that he has combed, things that ordinarily I wouldn't have paid attention to. I will pick it up from what the junior one has combed, so it's very possible at my level to miss out on things because of not having adequate manpower, it is very, very possible to miss out on something. So in that area, I don't think we are getting there at all.” (Consultant Anesthesiologist, UCH)

“So many things went down the line. As a resident doctor I was seeing 80 to 120 patients per day in a clinic, fine at the end of the day, they said the much hard work hand me a permanent stay so to say but that is not quality, it is over time and it does not improve patient care.” (Medical Consultant, OOUTH)

Inadequate provision of materials and consumables is another factor that hampers the delivery of quality care (Figure 6). Aside from the obvious infrastructural decadence and poor staffing, Nigerian hospitals suffer from inadequate hospital supplies. Lack of consumables frustrated both clinicians and patients leading to poor QoC.

“We don’t have enough resources to take care of patients. The human resources are part of it, equipment, instruments. Human resources, the staff to care for the patient. I mean the staff to patient ratio. We should have five nurses on the ward but we are having like 3 or 2, instead of six. So in that case, we want to give quality care, yet we are being hindered to give maximum care and the best to our patient.” (Medical Consultant, FMC)

“For example, in my unit, we work with petri-dishes. And as basic as that is, we don't have petri-dish. We don't have anti-biotic disks, to see our isolate, what are they sensitive to? What are they resistant to? And that's what we do basically in medical microbiology. And when there is known several attempts have been made, information has been passed, yet there is nothing so when you are not engaged, satisfaction is low... And the first thing is, okay, give us what we need to use for this patient...” (Medical Lab Scientist, UCH)

“Same applies to the rest as I work in the eye clinic. It is a specialized area but we have limited instruments to use in the care of our patients, when we have emergencies sometimes we have to improvise. We have a plant that we use as a pinhole we had to get the carpentry section to make it for us as pinhole, the hospital could not supply so we have to use our own personal money to make a pinhole or we use paper sheet put a hole through it for the patient to see, we usually have a big problem with doing it.” (Chief Nursing Officer, OOUTH)

Finally, poor funding and inefficient health insurance scheme jeopardize access to health and delivery of quality health care in Nigerian tertiary hospitals. A participant from OAUTHC cited an example of a procedure (mini surgery) that would have been easy if the funds were available.

“This morning I was just coming for a procedure and there are two options, book the patients to the minor theatre, wait for some time, go round pay and then the bill will end up at ₦15,000. There is another way, you will just get ₦25,000, materials will be there and electronic cauterization and let’s say the patient can afford it. So what would have cost one week would just be solved at that point of contact... If she didn’t have that money I will give her another appointment to go to the minor theatre to go and book and come back next Thursday and when it’s my turn maybe she has to wait for 4 or 5 hours before the procedure and I would have to use a knife, scissors. It affects the quality of care too because NHIS [National Health Insurance Scheme] is not well funded, if it’s well-funded, it will improve the quality of care.” (Professor of Medicine, OAUTHC)



Figure 6. Word cloud showing limitations to quality of care

Limitations

We used a non-probability method for the recruitment of respondents; however, this limitation could be minimized by the systematic selection of the surveyed hospitals. Furthermore, we attempted maximum variation sampling for the recruitment of focus group discussants within the hospitals. Like all other cross-sectional studies, there is a likelihood that the respondents exaggerated their wellbeing, QoWL and quality of care.

Conclusion

Many of the health care professionals reported poor quality of work-life and wellbeing resulting in poor quality of care for patients. We observed demographic variations in participant wellbeing, work- and health-related quality of life. Similarly, quality of care was poor and differed across the demographics such that men, participants between ages of 30 and 39 years, staff under two years in practice, entry-level degree holders, pharmacists and medical practitioners, part-time workers, participants on permanent morning duty, and those who worked longer periods delivered poorer quality of care with respect to their counterparts. Participants identified factors that impede quality care delivery as poor remuneration, lack of incentives, unsafe workplace, infrastructural deficit, a chronic shortage of medical supplies, equipment and consumables, frustration with power water and power supply, inadequate funding, poor health financing and insurance scheme for patients. Others are stalled promotion and paucity of in-service training opportunities.

Recommendations

Authorities should

- Review the patient-staff ratio with intention of employing more workers in departments that are in dire need of staff.
- Enter a new wage bargain with health care workers given the current economic realities, provide result targeted incentives.
- Interview and promote workers that are due for promotion.
- Improve budgetary allocation to the health sector and implement various recommendations on universal health insurance coverage in Nigeria.
- Partner with international and local donor agencies to enhance the supply of basic hospital consumables, long term plan should focus on local manufacturing of primary hospital supplies.
- The government may set up an endowment fund for periodic renovation of hospital facilities, and purchase of vital equipment.
- Hospital management should be open to discussions on in-service training, workload, flexible work schedule and job security.

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Appendices

Appendix A: The full questionnaire and scoring rubrics

HEALTH PROFESSIONAL WELLBEING, QUALITY OF WORK LIFE AND QUALITY OF CARE MATTER

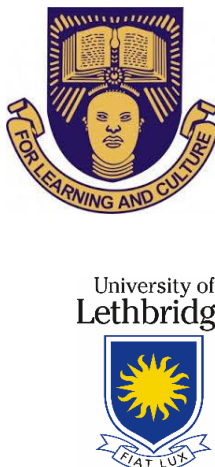
This survey is about health professional in tertiary health facilities. You will be asked about:

PART ONE Personal Well-being and Quality of Life

PART TWO Quality of Work Life

PART THREE Quality of Care

PART FOUR Information about Participants



University of
Lethbridge



University of
Lethbridge
Faculty of Health Sciences

PARTICIPANT CONSENT INFORMATION

Title of Study: Investigating how the Wellbeing & Quality of Work Life of Health Professionals relate to the Quality of Care at Selected Tertiary Health Institutions in Southwest Nigeria

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Dr. Olufemi Oyewole, Deputy Director, Physiotherapy Services, Olabisi Onabanjo University Teaching Hospital, Sagamu
Dr. Michael Ogunlana, Assistant Director, Physiotherapy Services, Federal Medical Centre, Abeokuta
Dr. Chidozie Mbada, Senior Lecturer, Medical Rehabilitation, Obafemi Awolowo University, Ile-Ife

Dear Participant,

Please read the following letter of information carefully before beginning the survey:

Why am I being asked to take part in this research study?

You are being asked to take part in this survey to assess the levels and correlations of wellbeing, Quality of Work Life (QoWL) and quality of care of health professionals at selected tertiary health institutions in Southwest Nigeria.

What is the reason for doing the study?

Poor state of health makes it difficult for health professionals to do their work diligently, and often makes them feel like quitting their job. For these reasons, quality of care is an important issue for workers, their employers, and their patients. We are trying to better understand how well-being and quality of work life correlate with quality of care, to better assist health professionals in providing the support needed.

What will I be asked to do?

We are asking you to fill out a voluntary survey. It should take about 10-20 minutes of your time. Please do not put your name on the survey. This is so that no one will know that you have filled one out. When you are done, please drop the survey off in the drop-box provided at the lounge area (Cafeteria).

What are the risks and discomforts?

It is not possible to know all of the risks that may happen in a study, but the researchers have taken all reasonable safeguards to minimize any known risks to a study participant. In case you experience emotional distress while completing this survey, please contact any of the following counselling units for emotional support:

Email to: medicalsocalservices@oouth.com

Tel: +2347031672846

OR

Email to: info@fmcabeokuta.org, fmcabk@yahoo.com

Tel: +234-8056301464

OR

Email to: ttbella-awusah@com.ui.edu.ng, bellatolu@gmail.com

[Tel: +2348025905241](tel:+2348025905241)

OR

Email to: servicom@oauthc.com, oauthcservicom@yahoo.com

Tel: +234-08152092768, +234-07036725667, +234-07036725018

What are the benefits to me?

You will be helping to increase knowledge about well-being and quality of work-life of health professionals in south west Nigeria. What we learn will help to guide work towards improving health for all, reducing absenteeism and high rates of turnover, and increasing productivity, which together, will lead to better services for people in tertiary health facilities.

Do I have to take part in the study?

Being in this study is your choice. If you decide not to participate in the survey, it will in no way affect the employment that you are entitled to. You do not have to answer any questions that you are not comfortable with. Please do not return your survey if you become uncomfortable overall with the questions. You can withdraw from the study simply by not putting your survey into the drop-box. After you have put your survey in the drop-box, we cannot remove your responses from the study because the surveys are anonymous.

Will I be paid to be in the research?

Because we don't know who is filling out surveys, we cannot pay you for your time. Please keep the pen and pocket diary attached to the survey as a small "thank you". These items are affixed to each blank survey. Feel free to keep these items even if you decided not to return the completed survey.

Will my information be kept private?

During the study we will be collecting data about you. We will do everything we can to make sure that this data is kept private. The information you provide is not connected to your name in any way. You will not be asked to provide any information that may reveal who you are. We will not ask for your name, employee number. You will be asked to provide contact information on a different form affixed to the survey only if you are interested in participating in a focus group, but your contact information will not be linked to your survey responses. We will ask you for basic information like age group, gender, and role (RN, Physician, Physio., etc.). Also, there will be a code on each survey that tells us which facility it came from. But when we report this information, facilities will only be identified by the type of facility, and a number (for example UCH#5). It is highly unlikely that anyone could identify you with this information. Only the research team will see the completed surveys. The information on the surveys will be entered into a computer by a member of the research team. The computer is protected with a password and kept in a locked room. All members of our team also have signed oaths to keep all the information confidential.

Original surveys will be kept in a locked filing cabinet in a locked office. All surveys and transcribed information will be destroyed in five years. We will write up the overall findings from the study so that people cannot be identified. Overall findings will be shared with staff, management and other researchers. Only anonymous aggregated summary data will be shared with participants, staff, Health Professionals and government officials in presentations, a report, articles, etc. with no possible reference to any individual.

For a copy of the research report, feel free to contact Dr. Adesola Odole at acodole@comui.edu.ng

Participants will be able to request a summary of the research findings by contacting the Principal Investigator or Co-PI and any of the Co-investigators after the study has been completed and the report submitted.

Please be aware that your responses are completely anonymous and will not be tied to you in any way.

What if I have questions?

If you have any questions about the research now or later, please contact Dr. Olu Awosoga at olu.awosoga@uleth.ca

Questions regarding your rights as a participant in this research may be addressed to the Office of Research Ethics, University of Lethbridge (Phone: 403-329-2747 or email at research.services@uleth.ca). This study has been reviewed for ethical acceptability and approved by the University of Lethbridge Human Participant Research Committee.

OR contact Dr. Adesola Odole at adesola_odole@yahoo.com, acodole@comui.edu.ng.

If you have any questions regarding your rights as a research participant, you may contact the Ethics Committee of the University of Ibadan and Chairman of this Committee can be contacted at Biode Building, Room 210, 2nd Floor, Institute for Advanced Medical Research and Training, College of Medicine, University of Ibadan, E-mail: uiuchirc@yahoo.com and uiuchec@gmail.com.

Submission of the survey implies your consent to participate. Please keep a copy of this consent form for your records. Thank you for your consideration.

Thank you for agreeing to participate in this survey. We would like to understand your health. Please complete this form as best you can. Please use the following rating scale to indicate the extent to which you agree with the following statements. Completing the survey will take approximately 10-20 minutes.

ONE

WHO-5 Well-being Index

Please respond to each item by marking one box per row, regarding how you felt in the last two weeks.		All of the time	Most of the time	More than half the time	Less than half the time	Some of the time	At no time
WHO 1	I have felt cheerful in good spirits.	<input type="text"/> 5	<input type="text"/> 4	<input type="text"/> 3	<input type="text"/> 2	<input type="text"/> 1	<input type="text"/> 0
WHO 2	I have felt calm and relaxed.	<input type="text"/> 5	<input type="text"/> 4	<input type="text"/> 3	<input type="text"/> 2	<input type="text"/> 1	<input type="text"/> 0
WHO 3	I have felt active and vigorous.	<input type="text"/> 5	<input type="text"/> 4	<input type="text"/> 3	<input type="text"/> 2	<input type="text"/> 1	<input type="text"/> 0
WHO 4	I woke up feeling fresh and rested.	<input type="text"/> 5	<input type="text"/> 4	<input type="text"/> 3	<input type="text"/> 2	<input type="text"/> 1	<input type="text"/> 0
WHO 5	My daily life has been filled with things that interest me.	<input type="text"/> 5	<input type="text"/> 4	<input type="text"/> 3	<input type="text"/> 2	<input type="text"/> 1	<input type="text"/> 0

WHO_QoL_Total = (Part_One_WHO1 + Part_One_WHO2 + Part_One_WHO3 + Part_One_WHO4 + Part_One_WHO5)

WHO_QoL_Percent = WHO_QoL_Total X 4

Satisfaction with Life as a Whole and the PWI Scale

The following questions ask how satisfied you feel, on a scale from zero to 10. **Zero** means you feel no satisfaction at all and **10** means you feel completely satisfied.

Part 1

1. "Thinking about your own life and personal circumstances, how satisfied are you **with your life as a whole?**"

No Satisfaction at all	0	1	2	3	4	5	6	7	8	9	10	Completely Satisfied
	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	

Part 2

2. "How satisfied are you **with your health?**"

No Satisfaction at all	0	1	2	3	4	5	6	7	8	9	10	Completely Satisfied
	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	

3. "How satisfied are you **with what you are achieving in life?**"

No Satisfaction at all	0	1	2	3	4	5	6	7	8	9	10	Completely Satisfied
	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	

4. "How satisfied are you **with your personal relationships?**"

No Satisfaction at all	0	1	2	3	4	5	6	7	8	9	10	Completely Satisfied
	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	

5. “How satisfied are you **with how safe you feel?**”

No Satisfaction at all	0	1	2	3	4	5	6	7	8	9	10	Completely Satisfied
	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	

6. “How satisfied are you **with feeling part of your community?**”

No Satisfaction at all	0	1	2	3	4	5	6	7	8	9	10	Completely Satisfied
	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	

7. “How satisfied are you **with your future security?**”

No Satisfaction at all	0	1	2	3	4	5	6	7	8	9	10	Completely Satisfied
	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	

8. “How satisfied are you **with your spirituality or religion?**”

No Satisfaction at all	0	1	2	3	4	5	6	7	8	9	10	Completely Satisfied
	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 30px; height: 30px; margin: 0 auto;"></div>	

PWI_Total = (Part_One_Life_Whole_PWI1 + Part_One_Life_Whole_PWI2 + Part_One_Life_Whole_PWI3
+ Part_One_Life_Whole_PWI4 + Part_One_Life_Whole_PWI5 + Part_One_Life_Whole_PWI6 +
Part_One_Life_Whole_PWI7 + Part_One_Life_Whole_PWI8)

PWI_Percent = PWI_Total X 1.25

TWO

Work-Related Quality of Life Scale

To what extent do you agree with the following? <i>Please fill in the appropriate circle.</i>		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	I have a clear set of goals and aims to enable me to do my job					
2.	I feel able to voice opinions and influence changes in my area of work					
3.	I have the opportunity to use my abilities at work					
4.	I feel well at the moment					
5.	My employer provides adequate facilities and flexibility for me to fit work in around my family life					
6.	My current working hours / patterns suit my personal circumstances					
7.	I often feel under pressure at work					
8.	When I have done a good job it is acknowledged by my line manager					
9.	Recently, I have been feeling unhappy and depressed					
10.	I am satisfied with my life					
11.	I am encouraged to develop new skills					
12.	I am involved in decisions that affect <u>me</u> in my own area of work					
13.	My employer provides me with what I need to do my job effectively					
14.	My line manager actively promotes flexible working hours / patterns					
15.	In most ways my life is close to ideal					
16.	I work in a safe environment					
17.	Generally things work out well for me					
18.	I am satisfied with the career opportunities available for me here					
19.	I often feel excessive levels of stress at work					
20.	I am satisfied with the training I receive in order to perform my present job					
21.	Recently, I have been feeling reasonably happy all things considered					
22.	The working conditions are satisfactory					
23.	I am involved in decisions that affect members of the public in my own area of work					
24.	I am satisfied with the overall quality of my working life					

WRQoL_Total = (Part_Two_Work_Related_QLS1 + Part_Two_Work_Related_QLS2 +
 Part_Two_Work_Related_QLS3 + Part_Two_Work_Related_QLS4 + Part_Two_Work_Related_QLS5 +
 Part_Two_Work_Related_QLS6 + **R_WRQoL7** + Part_Two_Work_Related_QLS8 + **R_WRQoL9** +
 Part_Two_Work_Related_QLS10 + Part_Two_Work_Related_QLS11 + Part_Two_Work_Related_QLS12 +
 Part_Two_Work_Related_QLS13 + Part_Two_Work_Related_QLS14 + Part_Two_Work_Related_QLS15 +
 Part_Two_Work_Related_QLS16 + Part_Two_Work_Related_QLS17 + Part_Two_Work_Related_QLS18 +
R_WRQoL19 + Part_Two_Work_Related_QLS20 + Part_Two_Work_Related_QLS21 +
 Part_Two_Work_Related_QLS22 + Part_Two_Work_Related_QLS23 + Part_Two_Work_Related_QLS24)
WRQoL_Percent = WRQoL_Total X 0.8333333333333333

THREE

Clinician Quality of Care Questionnaire

Please, indicate how frequently each item had occurred in the past six months

Item	Never	Very rarely	Rarely	Occasionally	Very frequently	Always
Person-centred care						
I saw positive progress in my clients/patients.						
I feel I provided high quality services to clients/patients.						
I felt connected to the clients/patients I am working with.						
I felt like I was able to really show compassion to a client/patient.						
I had space in my schedule to address client/patient emergencies.						
I helped a client/patient develop a safety plan to address potentially harmful behaviour or situations.						
I was able to support a client's/patient's action step toward a personal goal.						
I involved clients/patients in decisions about their care.						
I spent extra time with a client/patient who needed support.						
I was able to come up with a creative intervention to support a client/patient.						
I went "above and beyond the normal call of duty" to support a client/patient.						
I met my daily productivity expectations.						
Discordant care						
I had conflicts with clients/patients.						
I made minor mistakes in my work (not likely to affect clients/patients).						

I took a long time responding to certain client/patient requests.						
I treated clients/patients differently because they are my favourites.						
I was usually directive with clients/patients (telling them what to do).						
I was irritable interacting with clients/patients.						
I missed appointments or meetings with clients/patients.						
I missed deadlines at work.						
I had significant distractions in my work with clients/patients.						
I was late for work.						

CQoC_Total = (Part_Three_QOC_Person_Centred1 + Part_Three_QOC_Person_Centred2 +
 Part_Three_QOC_Person_Centred3 + Part_Three_QOC_Person_Centred4 +
 Part_Three_QOC_Person_Centred5 + Part_Three_QOC_Person_Centred6 +
 Part_Three_QOC_Person_Centred7 + Part_Three_QOC_Person_Centred8 +
 Part_Three_QOC_Person_Centred9 + Part_Three_QOC_Person_Centred10 +
 Part_Three_QOC_Person_Centred11 + Part_Three_QOC_Person_Centred12 + R_DC_1 + R_DC_2 +
 R_DC_3 + R_DC_4 + R_DC_5 + R_DC_6 + R_DC_7 + R_DC_8 + R_DC_9 + R_DC_10)
CQoC_percent = CQoC_Total X 0.9090909090909091

FOUR

Information About the Participant

Tick whichever apply to you:

Please remember that this information will not be reported in a way that identifies you. Only anonymous aggregated summary data will be reported with no reference to any individual. You can skip any questions that you wish not to answer.

1. What is your designation?

- ☐ Nurse Practitioner
- ☐ Medical Practitioner
- ☐ Physiotherapist
- ☐ Pharmacist
- ☐ Other (Please specify) -----

2. Nature of appointment

- ☐ Full time job
- ☐ Part time job
- ☐ Casual

3. What is the nature of your work schedule? (Tick all that apply)

- ☐ Permanent Morning
- ☐ Shift Duty
- ☐ Call duty

4. What is your gender?

- ☐ Female
- ☐ Male
- ☐ Choose not to say

5. How many hours (on the average) do you work per week?

- ☐ Less than 20 hours
- ☐ 20–40 hours
- ☐ 41–60 hours
- ☐ More than 60 hours

6. What is your age in years?

7. How long have you been working in this hospital?

- ☐ 0-2 years
- ☐ 2-5 years

- 6-10 years
- 11+years

8. What is your highest level of education?

- Higher National Diploma
- Bachelor/Graduate Degree
- Master/PhD
- Others, please specify:

Thank you for taking the time to complete this survey

***** Please put the completed survey back into the envelope, seal it, and put it
in the drop box *****

Any question or concerns about this survey should be directed to

Dr. Oluwagbohunmi Awosoga (olu.awosoga@uleth.ca)

Faculty of Health Sciences, University of Lethbridge, Alberta, Canada

Phone: 1-403-3324058

OR

Dr. Adesola Odole (adesola_odole@yahoo.com, acodole@comui.edu.ng)

Faculty of Clinical Sciences, College of Medicine, University of Ibadan, Nigeria

Phone: 08034051960

Appendix B: Focus group interview guide

Focus group guide for study Investigating how the Wellbeing & Quality of Work Life of Health Professionals relate to the Quality of Care at Selected Tertiary Health Institutions in Southwest Nigeria

Section 1: Quality of care

The questions for healthcare professionals are:

- i. Could you please describe what quality of care means to you?
- ii. When you think about quality of care, what comes to your mind?
- iii. Could you please list what you think constitute quality of care?
- iv. What made you feel that you were providing quality of care?
- v. What actions made you feel that you provided quality care?
- vi. What are the main difficulties you find that prevent you from giving your patients the quality of care you would like to give?
- vii. What changes could be made in this hospital to improve the quality of care?
- viii. What are some of the ways in which the unsatisfying aspects of your work could be improved?

Section 2: Wellbeing

- i. Please describe what you understand by personal wellbeing.
- ii. Could you please list the components of wellbeing?
- iii. How can we improve health professional's wellbeing in Nigeria?
- iv. Does standard of living affect personal wellbeing?

Section 3: Quality of work life

- i. What do you understand by quality of work life?
- ii. What are the constituents of work-related quality of life?
- iii. Are you satisfied with your quality of work life?

Probing questions will be used to help participants think more deeply, which included, "Can you please give me an example?" "What did that action make you feel?" and "How did that interaction help you?"

Appendix C: Rotated factor loading matrix

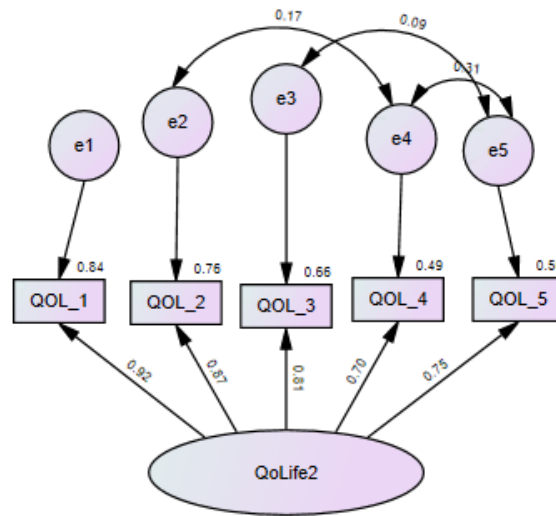
Questionnaire items	Factor				
	1	2	3	4	5
Quality of life (QOL)_1					.879
QOL_2					.855
QOL_3					.808
QOL_4					.713
QOL_5					.743
Personal Wellbeing Index (PWI)_1			.808		
PWI_2			.681		
PWI_3			.803		
PWI_4			.740		
PWI_5			.677		
PWI_6			.675		
PWI_7			.581		
PWI_8			.613		
Quality of work life (WRQOL)_1		†			
WRQOL_2		.456			
WRQOL_3		†			
WRQOL_4		†			
WRQOL_5		.658			
WRQOL_6		.544			
WRQOL_7		†			
WRQOL_8		.463			
WRQOL_9	.541	←			
WRQOL_10		→	.508		
WRQOL_11		†			
WRQOL_12		.556			
WRQOL_13		.704			
WRQOL_14		.596			
WRQOL_15		.468			
WRQOL_16		.640			

WRQOL_17		†		
WRQOL_18		.580		
WRQOL_19		†		
WRQOL_20		.488		
WRQOL_21		.487		
WRQOL_22		.707		
WRQOL_23		.501		
WRQOL_24		.648		
Patient-centered care (QOC_A)_1				.514
QOC_A_2				.518
QOC_A_3				.549
QOC_A_4				.562
QOC_A_5				.566
QOC_A_6				.690
QOC_A_7				.684
QOC_A_8				.650
QOC_A_9				.701
QOC_A_10				.712
QOC_A_11				.536
QOC_A_12				.462
Discordant care (QOC_B)_1	.810			
QOC_B_2	.805			
QOC_B_3	.635			
QOC_B_4	.689			
QOC_B_5	†			
QOC_B_6	.881			
QOC_B_7	.917			
QOC_B_8	.879			
QOC_B_9	.861			
QOC_B_10	.773			

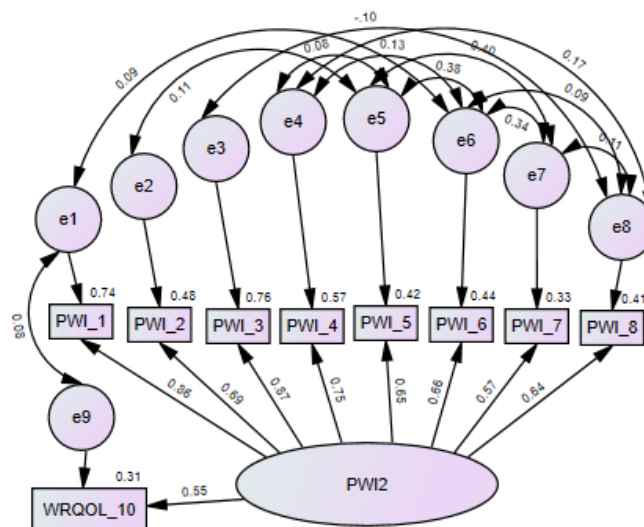
Extraction Method: Maximum Likelihood. Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations. † variance < .45 were suppressed.

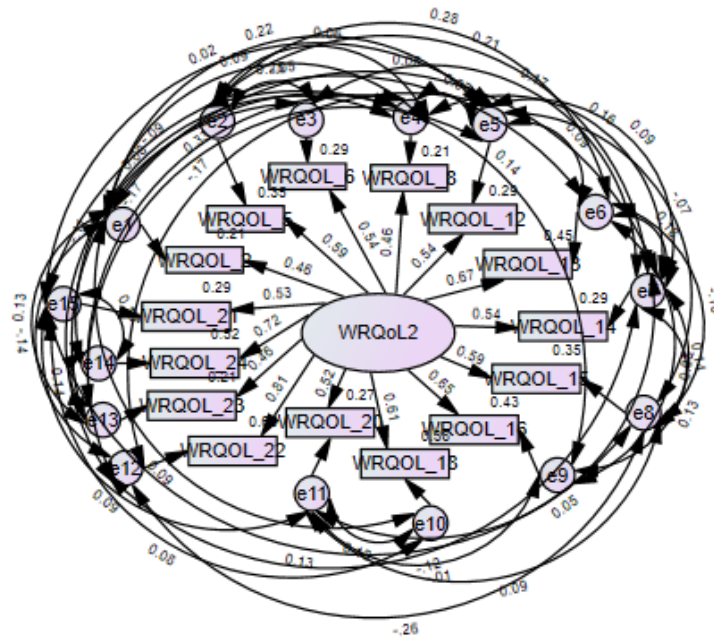
Appendix D: The structural equation diagrams



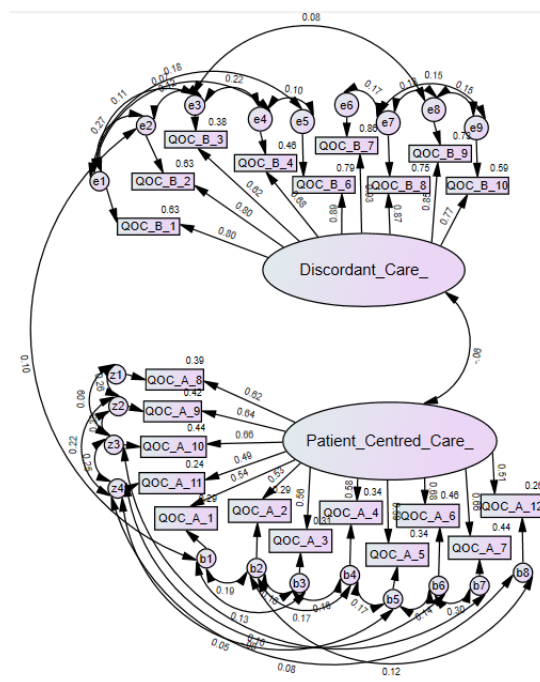
Structural equation model of the items in quality-of-life domain showing the standardized regression weights



Structural equation model of the items in personal wellbeing domain showing the standardized regression weights

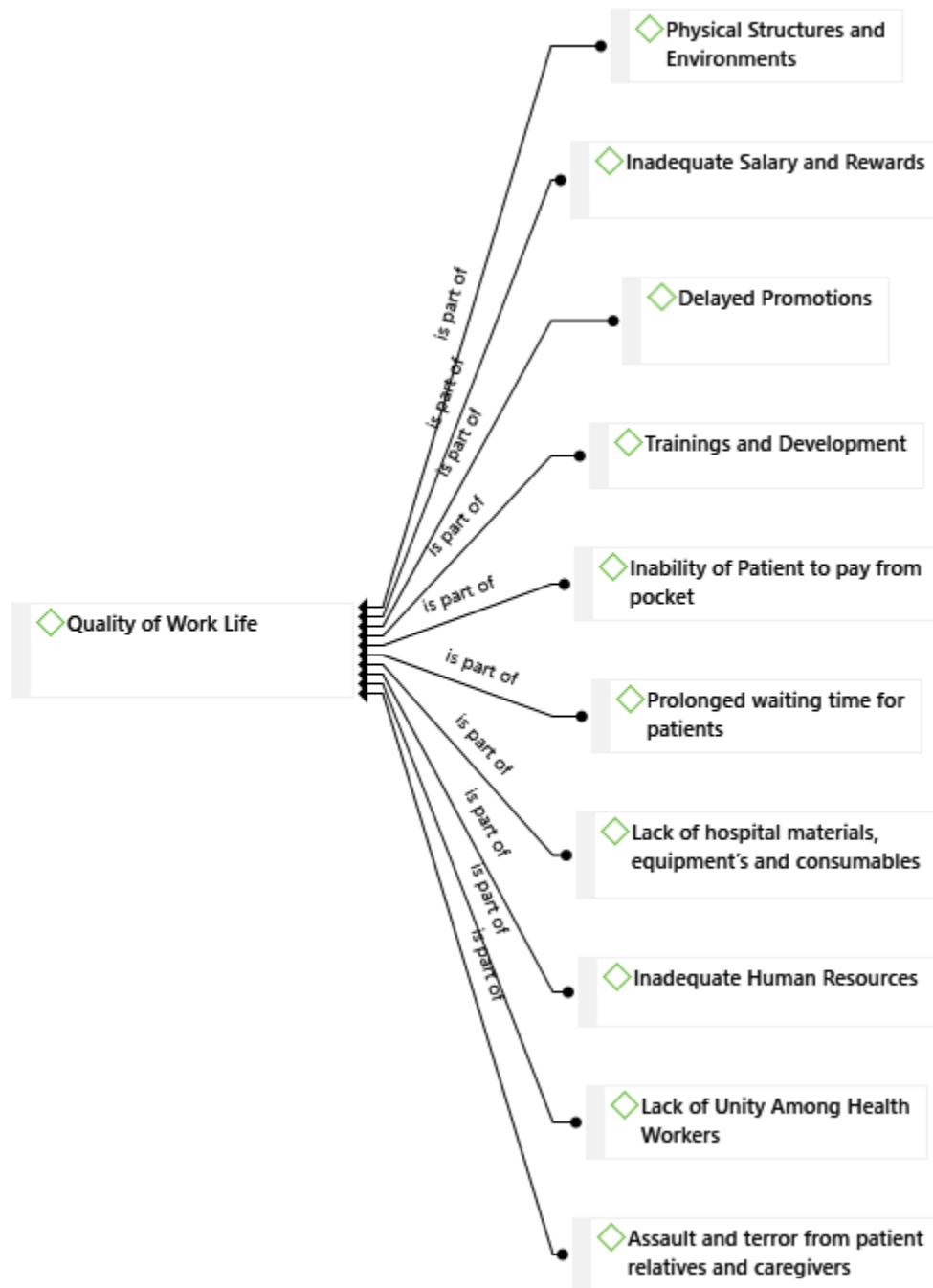


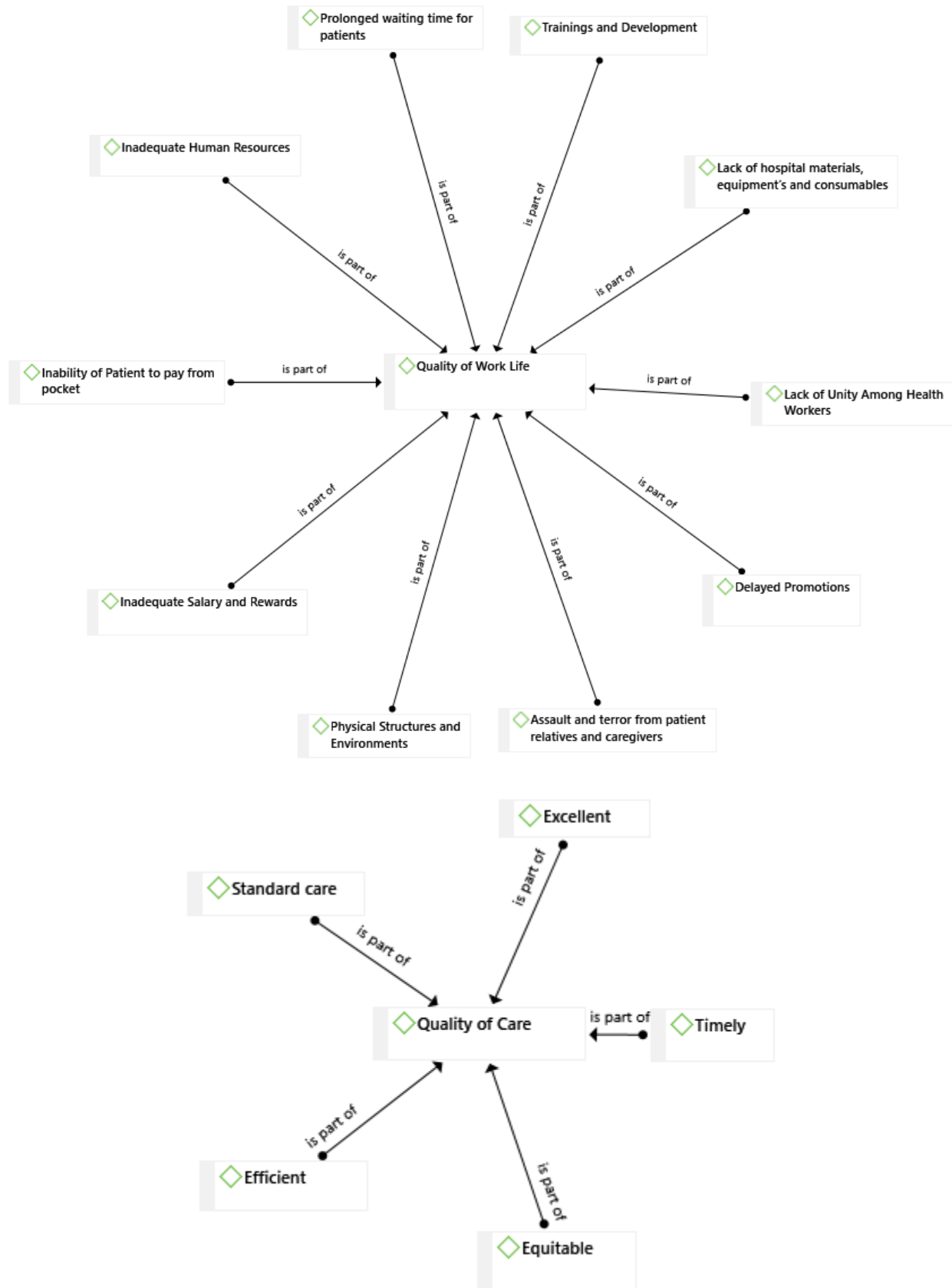
Structural equation model of the items in work-related quality of life domain showing the standardized regression weights

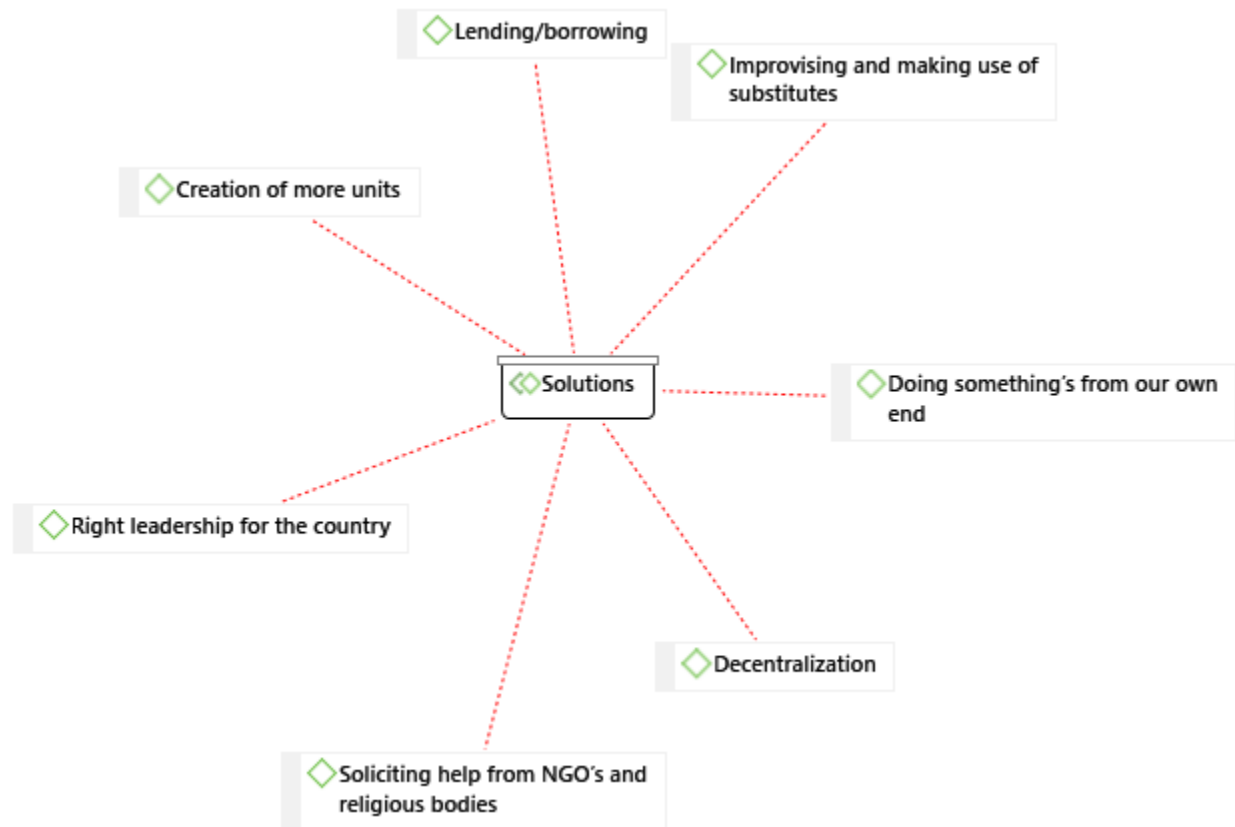


Structural equation model of the items in quality-of-care domain showing the standardized regression weights

Appendix E: The qualitative analysis thematic tree







Appendix F: The qualitative analysis word frequency and cloud

Theme 1: Definition of quality of care

Word	Length	Count	Weighted Percentage (%)
standard	8	3	3.00
right	5	2	2.00
time	4	2	2.00
working	7	2	2.00
ability	7	1	1.00
access	6	1	1.00
activities	10	1	1.00
add	3	1	1.00
appreciate	10	1	1.00
best	4	1	1.00



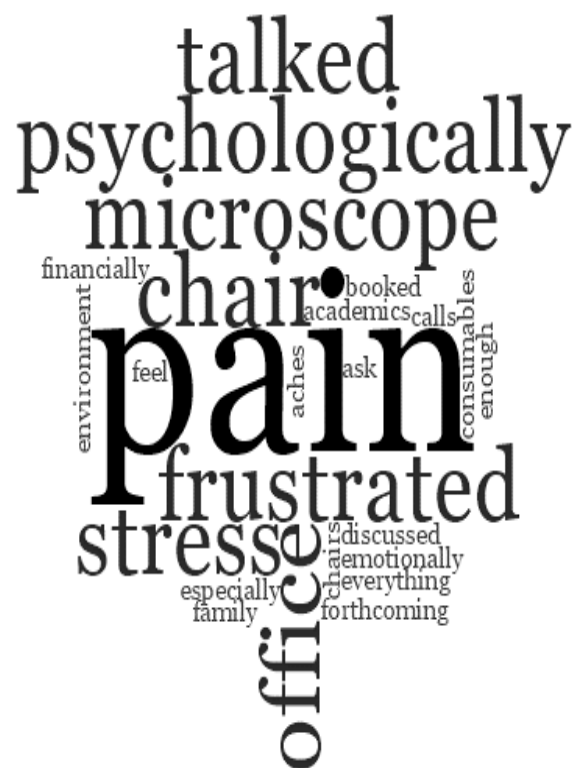
Theme 2: Dimensions of quality of work life

Word	Length	Count	Weighted Percentage (%)
environment	11	14	0.83
offices	7	12	0.71
resources	9	10	0.59
laboratory	10	8	0.48
materials	9	8	0.48
office	6	8	0.48
system	6	8	0.48
attend	6	7	0.42
break	5	7	0.42
doctor	6	7	0.42



Theme 3: Dimensions of quality of life and personal wellbeing

Word	Length	Count	Weighted Percentage (%)
pain	4	5	1.75
chair	5	3	1.05
frustrated	10	3	1.05
microscope	10	3	1.05
office	6	3	1.05
psychologically	15	3	1.05
stress	6	3	1.05
talked	6	3	1.05
academics	9	2	0.70
aches	5	2	0.70
ask	3	2	0.70
booked	6	2	0.70
calls	5	2	0.70
chairs	6	2	0.70
consumables	11	2	0.70



Theme 4: Solutions to improving quality of work life and wellbeing

Word	Length	Count	Weighted Percentage (%)
restrooms	9	8	2.39
help	4	6	1.79
system	6	5	1.49
consumables	11	4	1.19
decentralization	16	4	1.19
overstretched	13	4	1.19
basic	5	3	0.90
borrowed	8	3	0.90
department	10	3	0.90
needs	5	3	0.90



Appendix G: Sample distribution for qualitative analysis

Table 1: Attendance OOUTH

NUMBER	PROFESSION	CADRE	YEAR(S) IN PRACTICE	GENDER
1	Laboratory Scientist	Senior Medical Laboratory Scientist	10 Years	Female
2	Physiotherapist	Assistant Director of Physiotherapy	18 Years	Female
3	Medical Laboratory Scientist	Senior Medical Laboratory Scientist	21 Years	Female
4	Nursing	Chief Nursing Officer	25 Years	Female
5	Pharmacist	Principal Pharmacist	11 Years	Male
6	Pharmacist	Senior Pharmacist	7 Years	Female
7	Medical practitioner	Consultant	23 Years	Female
8	Physiotherapist	Senior Physiotherapist	5 Years	Female
9	Nursing	Chief Nursing Officer	22 Years	Female
10	Medical Doctor	Senior Medical Officer	10 Years	Male

Table 2: Attendance FMC

NUMBER	PROFESSION	CADRE	YEAR(S) IN PRACTICE	GENDER
1	Nursing	Deputy Director	37 Years	Female
2	Dental Surgeon	Consultant Pediatric Dentist	17 Years	Female
3	Physiotherapist	Assistant Director	23 Years	Male
4	Medical practitioner	Consultant	17 Years	Male
5	Physiotherapist	Deputy Director	21 Years	Female
6	Pharmacist	Deputy Director	21 Years	Female
7	Nursing	Assistant Director of Nursing	30 Years	Female
8	Medical Laboratory Scientist	Deputy Director	24 Years	Male

Table 3: Attendance OAUTHC

NUMBER	PROFESSION	CADRE	YEAR(S) IN PRACTICE	GENDER
1	Physiotherapy	Assistant Director of Physiotherapy	26 Years	Male
2	Physiotherapy	Director of Physiotherapy	30 Years	Male
3	Nursing	Assistant Director of Nursing	34 Years	Female
4	Nursing	Director of Nursing	30 Years	Female
5	Oral and Maxillofacial Surgery	Consultant	18 Years	Male
6	Physiotherapy	Deputy Director of Physiotherapy	21 Years	Male
7	Dental Practitioner	Consultant	15 Years	Male
8	Medicine (Gynecology)	Professor	37 Years	Male
9	Pharmacy	Assistant Director	12 Years	Female
10	Psychiatry	Consultant	16 Years	Male

Table 4: Attendance UCH

NUMBER	PROFESSION	CADRE	YEAR(S) IN PRACTICE	GENDER
1	Physiotherapy	Prof/Consultant	34 Years	Male
2	Critical Care and Anesthesiologist	Consultant	19 Years	Male
3	Dentist	Senior Registrar	11 Years	Male
4	Medical Practitioner	Consultant	25 Years	Male
5	Medical Practitioner	Consultant	14 Years	Male
6	Medical Laboratory Scientist	Medical Laboratory Scientist		Male
7	Medical Laboratory Scientist	Assistant Director	16 Years	Female
8	Nursing	Assistant Director	29 Years	Female
9	Nursing	Assistant Director	33 Years	Female
10	Physiotherapy	Senior Lecturer	37 Years	Male
11	Surgical Consultant	Professor	30 Years	Male
12	Pharmacy	Deputy Director	20 Years	Female

Appendix H: Ethical approval letters



Office of Research Ethics
4401 University Drive
Lethbridge, Alberta, Canada
T1K 3M4
Phone: (403) 329-2747
Email: research.services@uleth.ca
FWA 00018802 IORG 0006429

Tuesday, 25 May 2021

Principal Investigator: Olu Awosoga, University of Lethbridge

Co-Investigator: Adesola Odole, Department of Physiotherapy, College of Medicine, University of Ibadan

Study Title: Investigating How the Wellbeing & Quality of Work Life of Health Professionals Relate to the Quality of Care at Selected Tertiary Health Institutions in Southwest Nigeria

Action: Approved
HPRC Protocol Number: 2021-053

Approval Date: May 25, 2021

Annual Renewal Report Due: May 24, 2022

Dear Olu,

Your human research ethics application with co-investigator Adesola Odole titled "Investigating How the Wellbeing & Quality of Work Life of Health Professionals Relate to the Quality of Care at Selected Tertiary Health Institutions in Southwest Nigeria" has been reviewed and approved on behalf of the University of Lethbridge Human Participant Research Committee (HPRC) for the approval period **May 25, 2021 to May 24, 2022** and assigned Protocol #2021-053. The HPRC conducts its reviews in accord with University policy and the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (2018).

Please be advised that any changes to the protocol or the informed consent must be submitted for review and approval by the HPRC before they are implemented. An annual renewal report for continuing ethics certification will be required and is due to the Office of Research Ethics on or before **May 24, 2022**. If the protocol needs to be reviewed in other jurisdictions, please be advised that this approval may be only the first step in the ethics approval process for this study.

We wish you and your colleague the best with this research.


Sincerely,

A handwritten signature in cursive script, likely belonging to Susan Entz.

Susan Entz, M.Sc., Ethics Officer
Office of Research Ethics
University of Lethbridge
4401 University Drive
Lethbridge, Alberta, Canada
T1K 3M4

OLABISI ONABANJO UNIVERSITY TEACHING HOSPITAL (OOUTH)
P.M.B. 2001, SAGAMU, NIGERIA

Health Research Ethics Committee (HREC)
e-mail: oouth.hrec@yahoo.com
Registration Number: NHREC/28/11/2017



OOUTH/HREC/415/2021 23rd April, 2021

Adesola Odole C,
Department of Physiotherapy,
University of Ibadan

Re: Investigating How The Wellbeing And Quality Of Work Life Of Health Professionals Relate To The Quality Of Care At Selected Tertiary Health Institutions In Southwest Nigeria

I wish to inform you that Olabisi Onabanjo University Teaching Hospital Health Research Ethics Committee (OOUTH-HREC) has considered your proposal on the above stated title.

2. However, in the course of the consideration of this proposal, the following observations were made and directed that you should rectify them:

General:

- The entire protocol (including one-page summary) should be double- spaced.
- The title of the study (item 6) should be in normal fonts (not italicised) and should not be boldened.


Aim and Objectives:


- The third objective seems spurious.
- The prediction of the quality care predicated on patient quality assessment score may be too limiting and not a reliable metrics as the authors noted that several factors are inclusive in assessment of the quality of care of a health worker and the tendency to witch hunt health workers based on this singular metric. This may be modified or clarified.
- Weakness of the instruments; the researcher should clarify if the instruments for the study i.e.
 - Wellbeing of health professional.
 - Persona; wellbeing of quality of work life.
 - Quality of care have been validated in Nigeria.


Sampling Technique:

- f. The random sampling must be done to remove sampling bias, hawthorne effect etc.
3. You are to submit one (1) copy of the amended proposal for further consideration by the Committee.
4. The corrected copy should be accompanied by a covering letter stating the corrections made and pages/sections where they were made. Where suggested corrections are not effected, reasons should be given.
5. Please be informed that response to this amendment has to be submitted within eight (8) weeks after which it will be considered as a new protocol.

Thank you.


f Mrs. J. O. Awosile
Desk Officer,
For: Chairman, OOUTH-HREC

 **FEDERAL MEDICAL CENTRE**
Bisi Onabanjo Way, Idi-Aba, P.M.B. 3031 (Sapon Post Office), Abeokuta, Nigeria
08095948005-7
e-mail: fmcabk@yahoo.com, info@fmcabeokuta.org, info@fmcabeokuta.gov.ng



Medical Director
PROF. A.A. MUSA-OLOMU
MBBS, FWACS, FICS, MSc., PhD

Head of Clinical Services
DR. F. E. OJEBLENU
MBBS, FWACS (Ortho) Mac (Pub Health)

Director of Administration & Secretary to the Board of Management
MR. A.O. VAUGHAN
B.Ed (Eng) Cert. Health Planning & Mgt. MPA; AHAN

FMCA/470/11

Our Ref: _____ Type Ref: _____ Date: 14th May, 2021.

NAME OF PRINCIPAL INVESTIGATOR: DR. ADESOLA ODOLE

TITLE STUDY: INVESTIGATING THE WELLBEING & QUALITY OF WORK LIFE OF HEALTH CARE PROFESSIONALS AS IT RELATES TO QUALITY OF CARE IN SELECTED TERTIARY HEALTH INSTITUTIONS IN SOUTHWEST NIGERIA


RESEARCH EDUCATION: FEDERAL MEDICAL CENTRE, ABEOKUTA

PROTOCOL NUMBER: FMCA/470/HREC/01/2021/07

NREC ASSIGNED NUMBER: NHREC/08/10-2015

FEDERAL WIDE ASSURANCE: U.S/REG NO FWA/N03JQ001866

DATE OF RECEIPT OF VALID APPLICATION: 27/04/2021



NOTIFICATION OF EXECUTIVE APPROVAL OF PROTOCOL

This is to inform you that the Federal Medical Centre Abeokuta Health Research Ethics Committee (HREC) has decided to give executive approval to your research proposal after necessary reviews and corrections under the regulation guiding experiment in human subjects.

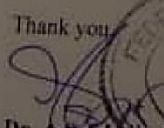
This approval is for a period of one year from 14th May, 2021 to 13th May, 2022. If there is delay in starting this research, please inform the HREC so that dates of approval can be adjusted accordingly. Note that no activity related to this research may be conducted outside these dates. No changes are permitted in the research without prior approval by HREC.

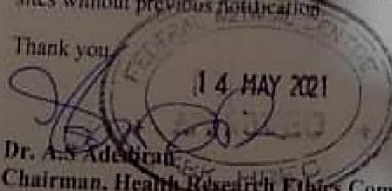
All forms and questionnaires used in this study must carry the HREC assigned number and the duration of HREC Approval.

You are to note further that the National Code of Health Research Ethics requires you to comply with all institutional guidelines, rules and regulation of the codes. Please ensure that any adverse effect from your study is promptly reported to the HREC Federal Medical Centre, Abeokuta.

You are expected to submit a progress report to this Committee every three (3) months from the date of this approval. The HREC reserves the right to conduct compliance visits on your research sites without previous notification.

Thank you


Dr. A.S. Adesola
Chairman, Health Research Ethics Committee



ETHICS AND RESEARCH COMMITTEE (ERC)
OBAFEMI AWOLOWO UNIVERSITY TEACHING HOSPITALS COMPLEX
Tel: +2348152092751 +2348152092755 +2348152092999
E-mail: oauthc.ethicalcommittee@yahoo.com

CHAIRMAN: Prof. A. A. Salako MBBS, M.SC, FWACS, FICS

REGISTRATION NUMBERS:
INTERNATIONAL: IRB/IEC/0004553 NATIONAL: NHREC/27/02/2009a

CLEARANCE CERTIFICATE

PROTOCOL NUMBER: ERC/2021/11/03

PROJECT TITLE: AN INVESTIGATION OF HOW WELLBEING AND QUALITY OF WORK LIFE OF HEALTH PROFESSIONALS AFFECT THE QUALITY OF CARE AT SELECTED HOSPITALS IN SELECTED TERTIARY HEALTH INSTITUTIONS IN SOUTHWEST NIGERIA

INVESTIGATOR: DR. CHIDOZIE E. MBADA

DEPARTMENT/INSTITUTION: DEPARTMENT OF MEDICAL REHABILITATION, COLLEGE OF HEALTH SCIENCES, OBAFEMI AWOLOWO UNIVERSITY, ILE-IFE

DATE OF RECEIPT OF VALID APPLICATION: 27/04/2021

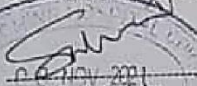
DATE WHEN FINAL DETERMINATION ON ETHICAL APPROVAL WAS MADE: 03/11/2021



DURATION OF APPROVAL: Six (06) Months

This is to inform you that the research described in the submitted protocol, and where applicable, the informed consent forms and other participant information materials have been reviewed and given full approval by the OAUTHC Ethics and Research Committee.

The approval is from **03/11/2021** to **02/05/2022**. You are to inform the Committee the commencement date of the research and if there is any delay in starting the research, please inform the Committee so that the date of approval can be adjusted accordingly. All informed consent forms used in the study (if applicable) must carry the OAUTHC/ERC protocol number and duration of approval of the study. In multi-year research you are to submit an annual report in order to obtain renewal of approval.

The National Code of Health Research Ethics required that you comply with all institutional guidelines, rules and regulations including ensuring that all adverse events are reported promptly to the OAUTHC/ERC. No changes are permitted in the research without prior approval by the OAUTHC/ERC. The OAUTHC/ERC reserves the right to conduct compliance visit to your research site without previous notification.


03 NOV 2021
Prof. A. A. Salako,
Chairman, OAUTHC/ERC

 **INSTITUTE FOR ADVANCED MEDICAL RESEARCH AND TRAINING (IAMRAT)**
College of Medicine, University of Ibadan, Ibadan, Nigeria.
Director: **Prof. Catherine O. Falade**, MBBS (IB), M.Sc., FMCF, FWACP
Tel: 0803 326 4593, 0802 360 9151
e-mail: cfalade@comuledu.ng lillyfunke@yahoo.com 

UI/UCH EC Registration Number: **NHREC/05/01/2008a**
NOTICE OF FULL APPROVAL AFTER FULL COMMITTEE REVIEW
Re: An Investigation into how the Wellbeing & Quality of Work Life of Health Professionals affect the Quality of Care at Selected Tertiary Health Institutions in Southwest Nigeria


UI/UCH Ethics Committee assigned number: **UI/EC/21/0125**
Name of Principal Investigator: **Dr Adesola C. Odole**
Address of Principal Investigator: Department of Physiotherapy
College of Medicine
University of Ibadan, Ibadan

Date of receipt of valid application: **08/04/2021**
Date of meeting when final determination on ethical approval was made: **N/A**

This is to inform you that the research described in the submitted protocol, the consent forms, and other participant information materials have been reviewed and *given full approval by the UI/UCH Ethics Committee.*

This approval dates from **15/06/2021 to 14/06/2022**. If there is delay in starting the research, please inform the UI/UCH Ethics Committee so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of these dates. *All informed consent forms used in this study must carry the UI/UCH EC assigned number and duration of UI/UCH EC approval of the study.* It is expected that you submit your annual report as well as an annual request for the project renewal to the UI/UCH EC at least four weeks before the expiration of this approval in order to avoid disruption of your research.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the UI/UCH EC. No changes are permitted in the research without prior approval by the UI/UCH EC except in circumstances outlined in the Code. The UI/UCH EC reserves the right to conduct compliance visit to your research site without previous notification.


Professor Catherine O. Falade
Director, IAMRAT
Chairperson, UI/UCH Research Ethics Committee
E-mail: uiuchec@gmail.com

Research Units • Genetics & Bioethics • Malaria • Environmental Sciences • Epidemiology Research & Behavioural & Social Sciences • Pharmaceutical Sciences • Cancer Research & Services • HIV/AIDS

Appendix I: Data repository

[Olu Nig HCW study](#)

Available on request