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Uncovering the determinants of poor welfare among doctors in the Central Region of Uganda, East Africa

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Abstract

Background Welfare is the general health, happiness, and safety of a person or group. Anything that threatens or undermines this living state is a direct cause of poor welfare. Poor welfare, which results from multiple contributing factors, is a common issue experienced by many doctors in low-income countries. Remuneration remains a strong contributing factor to the improvement of doctor's welfare.

Aim This study aimed to uncover the determinants of poor welfare among doctors in the Central Region of Uganda, East Africa.

Materials & methods This study presents data collected through a self-administered questionnaire within the Uganda Medical Association Central branch jurisdiction. Analytical cross-sectional design with mixed method approach was used.

Results Using WHO-5 well-being index, on average, the total raw score was 9(36%), which is well below score 13. Thus, out of the 111 doctors, 72% of the doctors had score below 13 (below 50%), hence poor mental well-being. Using Patient Health Questionnaire (PHQ-9), 20% of doctors had mild depression (score 5–9), 29% had moderate depression (score 10–14) and 49.5% had severe depression, all of which point to poor welfare. Net monthly income ($p=0.000$), levels of burnout ($p=0.001$) and depression ($p=0.000$) were found to be determinants of poor welfare. After controlling for confounders, respondents who earned 2–3 million Ugandan shillings were 2.7 times more likely to have poor welfare [aPR=2.71 at 95% CI(1.03–2.09)] compared with their colleagues who earned more than 5 million Uganda Shillings. Respondents with high level of burnout were 3.9 times more likely to have poor welfare [aPR=3.92 at 95% CI(1.18–6.76)].

Conclusions Poor welfare among doctors is a multifaceted problem driven by a combination of financial, environmental and institutional factors. The key determinants include inadequate compensation, extreme workload pressures, poor working conditions and significant psychological stress, which often lead to burnout.

Keywords Welfare · Remuneration · Employment · Burnout · Compensation · Mental health · Work environment

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Introduction and background

Oxford Dictionary defines welfare as the general health, happiness, and safety of a person, or a group [1]. Anything that threatens or undermines this living state, is a direct cause of poor welfare [2, 3]. Poor welfare which results from multiple contributing factors [4] is a common issue experienced by many doctors internationally [5]. It has been an important spark for multiple industrial actions conducted to sway governments to prioritize quality healthcare and the interests of doctors in affected countries [6–8]. Recently in South Korea, doctors were striking against the states. It was planned to increase South Korea's yearly medical school, causing worry among junior doctors, that adding more doctors would result in lower incomes [9]. Pay remains a very strong contributing factor to the improvement or degradation of doctors' welfare [10, 11]. To improve their welfare status many doctors have migrated to regions with better welfare opportunities which has increased the brain drain in Low-income countries [12, 13].

Within the East African Community block, the burden of poor doctor welfare which is under-reported, is likely high since the welfare indices such as income levels, which directly impact wellness [14, 15]. This remains at unsatisfactory levels and are limited by certain prevalent bottlenecks such as unemployment, inadequate human resource, inadequate healthcare financing, poor leadership and management among others [11]. WHO recommends a 1 per 1,000 physician patient ratios, and yet Uganda stands at 1 per 25,000 which translates to an over-burdened workforce with high workloads in the context of poor working conditions for the few recruited personnel [16–18]. Thus, they are overwhelmed and face frequent burnouts and loss of interest in work, that negatively impacts their welfare [16, 18].

In line with the recommendations of WHO Global Strategy of Human Resources for Health, there is a boom in the number of Ugandan healthcare training institutions and subsequently an increase in healthcare professionals trained for the job market in Uganda [8, 19].

Despite such positive strides, Uganda faces persistent health workforce challenges: shortages of skilled doctors, uneven geographic distribution, high attrition from the public sector and brain-drain. Anecdotal and limited empirical evidence seem to point to the low pay, heavy workloads, poor working conditions, limited career progression, rising burnout, mental-health problems, frustration and moral injury among Ugandan doctors [20, 21]. These welfare issues have continued to undermine clinical performance, retention, and health-system goals (universal health coverage) as well as quality of care [20, 22].

In this study, the investigators assessed the determinants of poor welfare among doctors in the Central Region of Uganda. Thus, this survey aimed to explore the state of welfare of doctors within the Central branch jurisdiction of the Uganda Medical Association to inform advocacy activities and generate sustainable recommendations. Precisely, we focus on well-being and some aspect of economic welfare to inform the overall welfare of Uganda doctors.

Conceptual framework

Measuring well-fare is no simple task as many variables are involved [1, 5, 23], some of which are subjective. Thus, welfare is defined in terms of Economic welfare (income, consumption, wealth), Subjective welfare (job satisfaction, wellbeing, life satisfaction), Health & functioning (physical/mental health, burnout), Professional welfare (work conditions, autonomy, career prospects) and Social welfare (work–life balance, family outcomes) as shown in Fig. 1. Quiros-Romero & Reinsdorf, asserted that system national account and economic welfare are all part of the overall well-being (Fig. 1). This study concentrated on measuring well-being (WHO-5 well-being and other subjective well-beings) and economic welfare as overall welfare of Ugandan doctors.

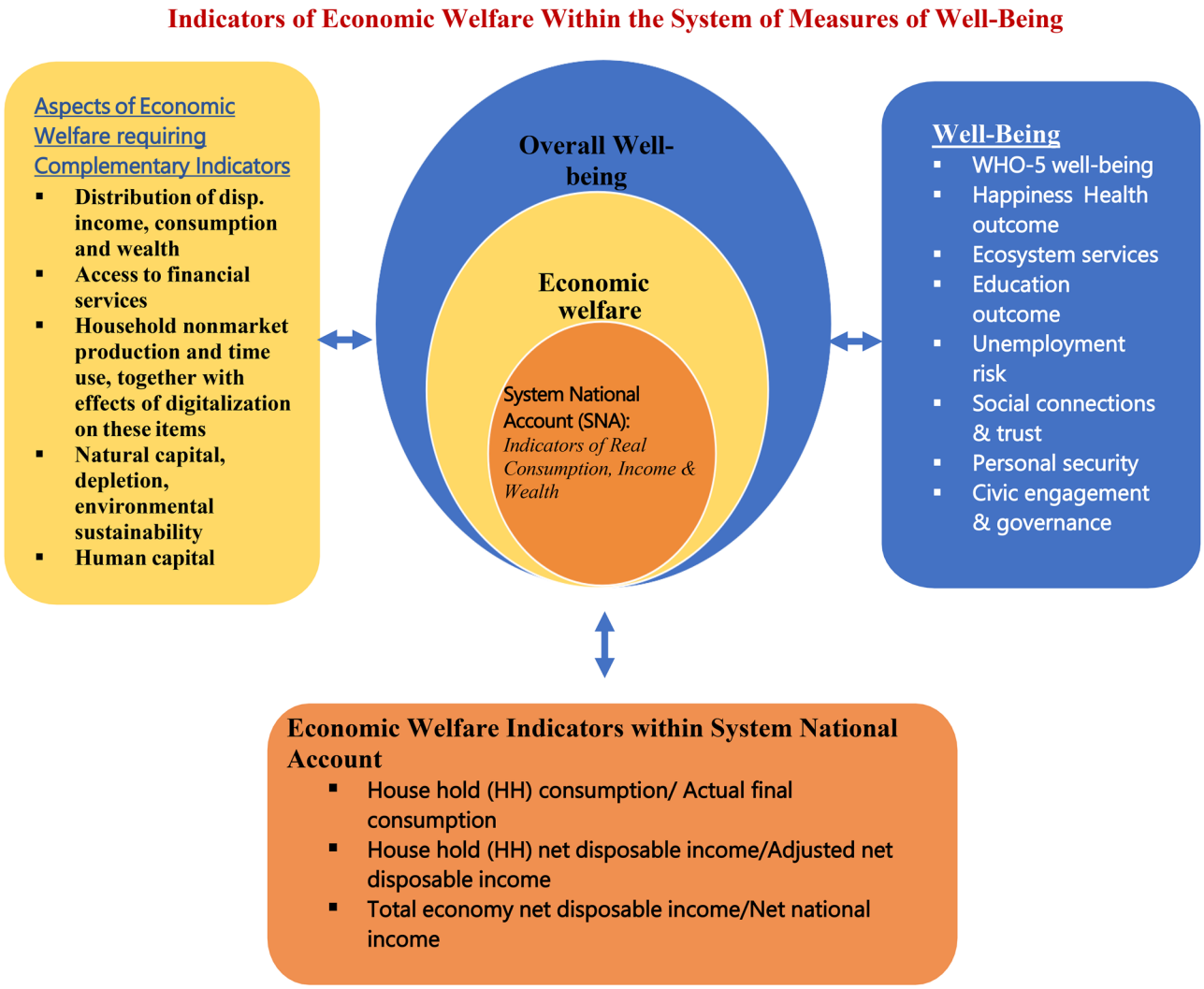


Fig. 1 Various indicators used in measuring welfare [Adopted from Quiros-Romero & Reinsdorf, 2020]

Statement of the problem

Studies have found that community health workers had higher prevalence of depression, anxiety and post-traumatic stress disorder (PTSD) compared to facility-based workers [24]. Perceived stress, burnout, and negative attitude were associated with higher odds of depression [25–27]. Medical students are equally affected [28]. These challenges significantly affected the productivity of doctors and quality of care given [29–32].

Thus, the welfare of Ugandan doctors is poor and yet insufficiently understood. Many doctors experience low financial and non-financial wellbeing (including burnout, poor mental and physical health, unsatisfactory working conditions, and weak professional development opportunities). The consequences are seen in absenteeism, high attrition rate, brain drain, reduced quality of care, and loss of investment in medical training. Current policy responses are hampered by fragmented data, lack of standardized welfare metrics, and limited evidence on the drivers and consequences of poor welfare in the Ugandan context. This study sought to uncover the determinants of poor welfare of among doctors in the Central Region of Uganda with the aim of providing evidence-based remedies.

Materials and methods

Study design

The study employed analytical cross-sectional design with mixed method approach. This study presents data collected through a self-administered questionnaire within the Uganda Medical Association Central branch jurisdiction.

Survey area

Uganda, popularly known as the 'The Pearl of Africa' is located in East Africa and lies astride the equator. It is a land-locked country bordered by Kenya in the East, Tanzania in the South, Rwanda in the Southwest, Democratic Republic of Congo in the West and South Sudan in the North. The southern part of the country includes a substantial portion of Lake Victoria, shared with Kenya and Tanzania, situating the country in the African Great Lakes region [33, 34].

Uganda has a total area of 241,555 square kilometers, open water bodies covers 37,013 square kilometers and Wetlands covers 8,773 square kilometers. Uganda's Population is 45,905,417 persons (Census 2024), with male numbering 22,314,289 persons and females numbering 23,591,128 persons [34]. Kampala, the capital city of Uganda, has the majority of higher-level health services. It also has the largest proportion of doctors and is the base for the Uganda Medical Association Central branch (U.M.A). U.M.A Central Branch comprises; Buvuma, Buikwe, Butambala, Mukono, Mpigi, Kayunga, Kampala, Wakiso, Luweero, Nakasongola, Nakaseke and Gomba [21]. See appendix 1 for map of Uganda showing Central region and U.M.A central branch jurisdiction, where this study concentrated.

Recruitment of participants

Participants were selected according to the following eligibility criteria for inclusion:

1. Possessed a Bachelor of Medicine and Bachelor of Surgery (MBChB) degree from a recognized institution.
2. Participants must be a registered medical practitioner with the Uganda Medical and Dental Practitioners Council (UMDPC).
3. Participant must be Living and working in Uganda at the time of the study.

The call for participation in the study was sent out online on WhatsApp social media platform to known categories and colleagues were encouraged to share within their networks of known categories.

Sample size determination

The sample size was calculated using the OpenEpi sample calculator [35, 36] as shown below to yield a target sample of participants as listed below.

Sampling size determination

$$n = N * X/(X + N - 1),$$

where $X = Z_{\alpha/2}{}^2 * p*(1-p) / MOE^2$, = 111 respondents.

- Zα/2 is the critical value of the Normal distribution at α/2 (e.g., for a confidence level of 95%, α is 0.05 and the critical value is 1.96),

- MOE is the margin of error,
- p is the sample proportion, and.
- N is the population size.

Note that a Finite Population Correction has been applied to the sample size formula.

Sampling techniques

The designed survey questionnaire was sent randomly to online participants whose records are known with the Uganda Medical and Dental Practitioners Council (UMDPC), the licensing body for all doctors in Uganda.

Data collection and analysis

Data was collected online using Microsoft Forms questionnaire tool that was shared as a link on multiple doctors' WhatsApp groups. The screened using the eligibility criteria for recruitment and the collected data was converted into an excel spreadsheet. Data was then entered into statistical package for social sciences (SPSS). Data was cleaned, coded, anonymized and analyzed in SPSS software.

Operational definitions, measurements and instruments used

1. **Economic welfare**: Economic welfare was defined as doctor's financial wellbeing and ability to meet household needs.

   Measurement: Monthly net income (UGX) as shown in Table 4, income sources (public salary, private practice, allowances), household consumption per capita (UGX), asset index (ownership of durable goods).
   Instruments: Payroll records, self-report survey, household consumption module.

2. **Subjective wellbeing / overall life satisfaction**: This was defined as self-rated global evaluation of life quality.

   Measurement: Single-item life satisfaction (0–10 scale) or WHO-5 Wellbeing Index (score 0–25). In this study, we used WHO-5.
   Instruments: WHO-5 questionnaire or single-item scale.

3. **Mental health**: This was defined as the presence and severity of common mental disorders such as depression and anxiety.

   Measurement: PHQ-9 for depressive symptoms (score 0–27); GAD-7 for anxiety (score 0–21); caseness thresholds (e.g., PHQ-9$\geq$10) and WHO-5 well-being Index.
   Instruments: PHQ-9, GAD-7 self-administered.

4. **Burnout**: Burnout was referred to as work-related emotional exhaustion, depersonalization, and reduced personal accomplishment.

   Measurement: Maslach Burnout Inventory (MBI) subscales [Emotional Exhaustion (EE), Depersonalization (DP), Personal Accomplishment (PA)].
   Instruments: Maslach Burnout Inventory (MBI).

5. **Job satisfaction**: Job satisfaction was defined as the overall contentment with job and specific job facets such as pay, supervision, workload and career prospects.

   Measurement: Job Satisfaction Survey (JSS) or multi-item scale covering pay, promotion, supervision, coworkers, nature of work (Likert 1–5).
   Instruments: Job Satisfaction Survey (JSS) /questionnaire.

6. **Workload**: This is the quantity and temporal distribution of work tasks.

   Measurement: Total hours worked/week, on-call nights/month, patient consultations/day, administrative hours/week.
   Instruments: Self-reported average weekly hours.

7. **Working conditions / work environment**: This refers to the availability of resources, staffing adequacy, infrastructure, equipment, safety and supervisory support.

   Measurement: Perceived resource adequacy (Likert), staffing ratio (patients per doctor), index of facility infrastructure (binary checklist), reports of workplace incidents.
   Instruments: Facility assessment checklist plus survey items on perceived conditions.

8. **Professional development & career prospects**: These are the available opportunities for training, promotion, specialist training access, and perceived career trajectory.

   Measurement: Number of CPD events attended/year, availability of promotion pathways (yes/no), perceived career progression score (Likert).
   Instruments: Human resource records, survey items.

9. **Autonomy & professional control**: This is the degree of control over clinical decisions, scheduling, and practice.

   Measurement: Decision latitude scale and Likert items on clinical autonomy and scheduling control.
   Instruments: Standardized decision latitude questions.

10. **Physical health & functioning**: This referred to self-reported physical health status and presence of chronic conditions affecting work.

    Measurement: Self-rated health (excellent–poor), number of sick days in past 12 months, presence of chronic diagnoses (yes/no).
    Instruments: Survey items, facility sick-leave records.

11. **Work–life balance & social outcomes**: This is the ability to reconcile work demands with family/social life.

    Measurement: Work–life balance scale (Likert), frequency of missed family events, partner/family satisfaction items.
    Instruments: Standardized work–life balance questionnaire.

Table 1 Background characteristics of respondents

Summary of the Sample characteristics	Frequency, $N=111$
Gender of respondent	
• Male	77(69.4%)
• Female	34(30.6%)
Age of respondent in years	
• <30	30(27.0%)
• 31–40	54(48.6%)
• 41–50	18(16.2%)
• 51–59	6(5.4%)
• >60	3(2.7%)
Location by Central District	
• Kampala	52(46.8%)
• Mukono	4(3.6%)
• Wakiso	17(15.3%)
• Mpigi	1(0.9%)
• Mityana	1(0.9%)
• Others	36(32.4%)
Location by Branch	
• In central branch	75(67.6%)
• Non-Central branch	36(32.4%)
Employment Job Title	
• Senior Consultant	03(2.7%)
• Retired	01(0.9%)
• Consultant	06(5.4%)
• MOSG	17(15.3%)
• Public Health Specialist	04(3.6%)
• SHO	07(6.3%)
• Medical Officer	70(63.1%)
• Intern Doctors	03(2.7%)
‘ How respondent is employed	
• Individual consultant	01(0.9%)
• NGO	12(10.8%)
• Non-Medical, with contract	01(0.9%)
• Not Employed	06(5.4%)
• PNFP	12(10.8%)
• Private Full-time, with contract	16(14.4%)
• Private- Non-Medical	01(0.9%)
• Private fulltime, without contract	10(9.0%)
• Volunteer	05(4.5%)
• Self-employed Medical	05(4.5%)
• Private locum	04(3.6%)
• Private Part-time without contract	08(7.2%)
• Private Part-time with contract	07(6.3%)
• Public service	35(31.5%)
• Public service, temporary Contract	01(0.9%)
• Resident	01(0.9%)
• Retired	01(0.9%)
• Self-employed Non-Medical	01(0.9%)
Facility level	

Table 1 (continued)

Summary of the Sample characteristics	Frequency, $N=111$
• District Hospital	10(9.0%)
• Health Centre 3	07(6.3%)
• Health Centre 4	13(11.7%)
• National Referral Hospital (NRH)	16(14.4%)
• Non-Governmental Organization (NGO)	07(6.3%)
• Private-Not-For-Profit (PNFP) hospitals	10(9.0%)
• Private clinic	05(4.5%)
• Private company	02(1.8%)
• Private hospital	13(11.7%)
• Private Medical Center	12(10.8%)
• Regional Referral Hospitals (RRH)	09(8.1%)
• University	06(5.4%)
• Research Institute	01(0.9%)
Length of current employment	
• 1–2 years	30(27.0%)
• 2–3 years	15(13.5%)
• 3–4 years	10(9.0%)
• 4–5 years	09(8.1%)
• Less than 1 year	21(18.9%)
• More than 5 years	26(23.4%)

12. **Absenteeism & presenteeism**: This is the absence from scheduled work (absenteeism) and reduction in productivity while at work (presenteeism).

    Measurement: Days absent in past 12 months (administrative records/self-report) and Stanford Presenteeism Scale scores.
    Instruments: Human resource records.

13. **Safety & workplace violence**: This was defined as the exposure to violence, threats, or hazardous incidents at work.

    Measurement: Incidence of verbal/physical threats in past 12 months (count), perceived safety score (Likert).
    Instruments: Survey incident reporting items, facility incident logs.

14. **Composite Welfare Index**: This is the aggregated score combining standardized domains (economic, mental health, burnout, job satisfaction, working conditions).

    Measurement: Normalize each domain (z-scores or 0–100), weight domains (equal or evidence-based), compute composite score; define welfare thresholds (e.g., low/medium/high).
    Instruments: Derived from above measures.

Ethical approval and consent to participate

The authors followed the ethical procedures governing research with human participants. Approval was granted by Mulago Hospital research ethic committee (MHREC-2851) and the required consent to participate sought from the participants before filling the forms. Identities of the respondents were anonymized. Participation was voluntary. The study adhered to the Helsinki declaration.

Results

Background characteristics of respondents

111 participants responded to the online survey of which 77(69.4%) were Male and 34(30.6%) Female. 54(48.6%) of the respondents who constituted the majority were aged between 31 and 40 years of age. The other details are shown in Table 1.

Mental well-being of Ugandan doctors

The study used WHO-5 Well-being Index (See appendix 2), Patient Health Questionnaire (PHQ-9) (see appendix 3), Generalized Anxiety Disorder (GAD-7) Questionnaire (appendix 4) to determine the mental well-being of doctors.

Using the WHO-5 well-being index (appendix 2), on average, the total raw score was 9(36%) which is well below score 13. Thus, out of the 111 doctors, 72% had score below 13 (below 50%), hence 72% of doctors had poor mental well-being (poor welfare).

Using the Patient Health Questionnaire (PHQ-9) (appendix 3), 20% of doctors had mild depression (score 5–9), 29% had moderate depression (score 10–14) and 49.5% had severe depression, all of which point to poor welfare among doctors.

However, using Generalized Anxiety Disorder (GAD-7) Questionnaire (appendix 4), most of the doctors (85.6%) had minimal anxiety (Score 0–4). Using the Maslach Burnout Inventory (MBI) tool (appendix 5), most of the doctors (47.7%) had moderate burnout followed by low burnout (37.8%).

Overall life satisfaction of Ugandan doctors

The overall life satisfaction was defined as self-rated global evaluation of life quality and was measured using WHO-5 well-being index as presented under the section on mental well-being. However, other sections of life satisfaction were also included:

i. **Satisfaction with Employment**

Job satisfaction was defined as the overall contentment with job and specific job facets such as pay, supervision, workload and career prospects and measured using job Satisfaction Survey (JSS). When respondents were asked about "Overall, how satisfied are you with your current employer?" 45(40.5%) were overall dissatisfied with their current employer while 39(35.1%) were overall satisfied by their current employer. The deeper subgroup analysis is shown in Table 2.

ii. **Pay and Compensation**

Regarding their opinion on pay and compensation, overall, 60(54.1%) respondents were in disagreement, meaning they are not satisfied with their pay and compensation whereas 51(45.9%) were in agreement. The individual statements as listed Fig. 2. The study further found that many doctors [73(65.7%)] received their payment late over the past 3 months. On Matters of gratuities and National Social Security Fund (NSSF) contributions, 64(57.7%) of the respondents received gratuities or NSSF as part of their gross pay while 32(28.8%) did not receive any gratuity or NSSF as part of their gross pay while 15 (13.5%) respondents where not sure.

iii. **Career Satisfaction and Promotion**

65(58.6%) of the respondents were not satisfied with the path that their career was taking, followed by 29(26.1%) respondents who had passive response whereas 4(3.6%) respondents were satisfied, with a net promoter score of -54% as shown in Fig. 3.

Table 2 Further analysis on level of satisfaction with current employment

Subgroup analysis	Satisfied *n* (%)	Dissatisfied *n* (%)
Gender		
Male	22(0.29)	37(0.48)
Female	17(0.5)	8(0.23)
Age-Group		
<30 years	10(0.33)	14(0.47)
31–40 years	31(0.57)	22(0.41)
41–50 years	7(0.39)	6(0.33)
51–60 years	3(0.5)	2(0.33)
Job Title		
Senior Consultant	1(0.33)	2(0.66)
Consultant	4(0.8)	1(0.2)
MOSG	6(0.3)	8(0.4)
SHO	4(0.66)	2(0.33)
Senior Medical Officer	5(0.33)	7(0.47)
Medical Officer	18(0.33)	24(0.44)

MOSG=Medical Officer Special Grade, SHO=Senior House Officer

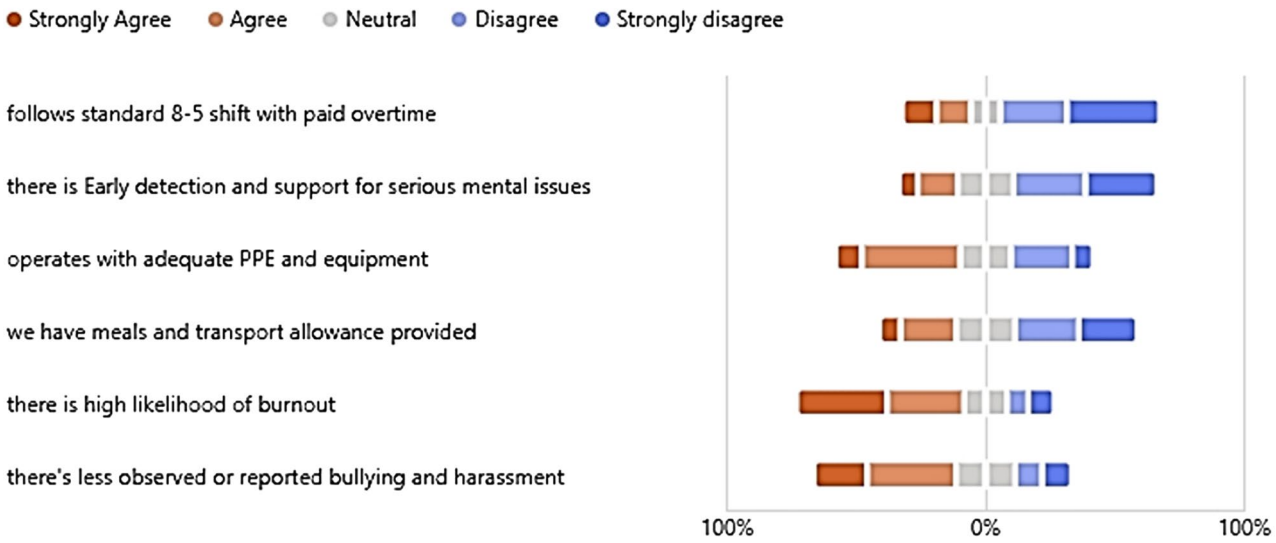


Fig. 2 Bar graph showing opinions regarding pay and compensation of respondents



Fig. 3 Very low satisfaction with the career path of the respondents

iv. **Work Environment Status**

Respondents shared their opinions on the work environment at their organizations as summarized in the bar chart below in Fig. 4; Table 3. There were many welfare issues relating to the work environment, as many doctors agreed that there is high likelihood of burnout and disagreed that there is early detection and support for serious mental issues (Fig. 4). As seen in Table 3, doctors mentioned corruption in district top management, good

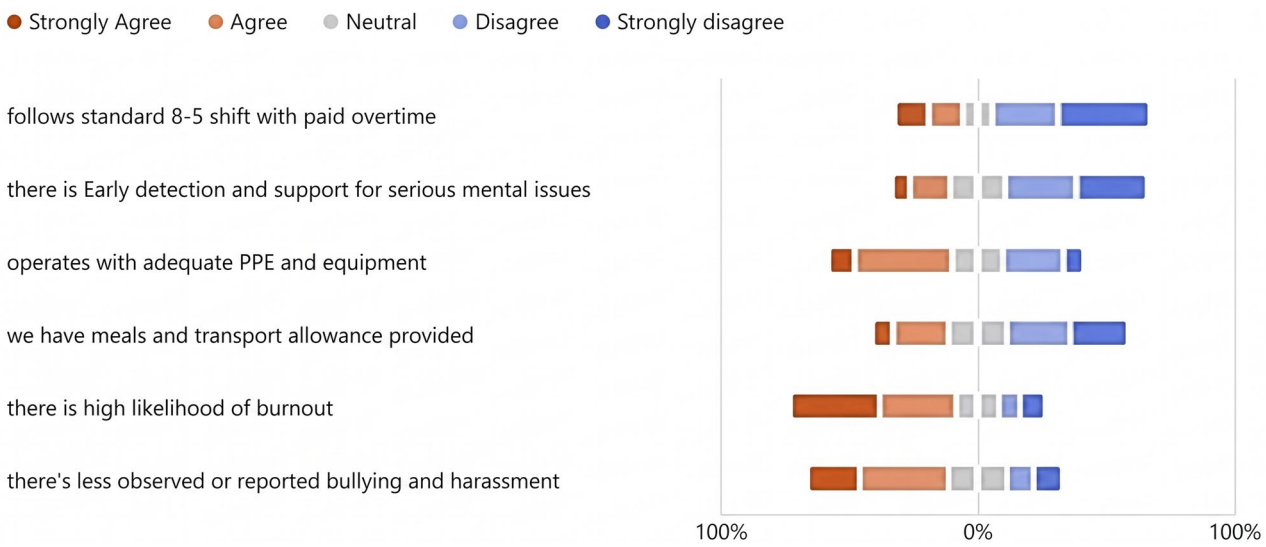


Fig. 4 Bar graph on opinions regarding organizational work environment

environment, but little and delayed payments, heavy workload and no job security as some of the factors affecting them at work environment.

Determinants of poor welfare among doctors

To establish the determinants of poor welfare of Ugandan doctors, bivariate and multivariate analysis was run as shown in Table 4. The determination of welfare of doctors was computed using the WHO-5 well-being index (appendix 2). On average, the total raw score was 9(36%) which is well below score 13. Thus, out of the 111 doctors, 72% had score below 13 (below 50%), hence 72% of doctors had poor mental well-being, considered as poor welfare in this study. The prevalence rate of poor well-being was, thus, 72% among Ugandan doctors.

As shown in Table 4, the study found that gender of respondents was associated with poor welfare ($p=0.031$). After adjusting for confounders, male respondents were found to be 2.8 times more likely to have poor welfare than their female counterparts [aPR=2.8 at 95% CI(1.21–4.17)]. Location of the respondents by branch was also associated with poor welfare ($p=0.041$), with odd of poor welfare being 1.5 times greater among those respondent in non-central branch [aPR=1.5 at 95% CI(1.31–3.61)].

Similarly, net monthly income ($p=0.000$), levels of burnout ($p=0.001$) and depression ($p=0.000$) were also found to be determinants of poor welfare. After controlling for confounders, respondents who earned 2–3 million Ugandan shillings were 2.7 times more likely to have poor welfare [aPR=2.71 at 95% CI(1.03–2.09)] compared with their colleagues who earned more than 5 million Uganda Shillings. Respondents who earned less than 2 million Uganda shillings were about 3 times more likely to have poor welfare [aPR=2.96 at 95% CI(1.18–3.99].

Respondents with high level of burnout were 3.9 times more likely to have poor welfare [aPR=3.92 at 95% CI(1.18–6.76)] followed by those with moderate burnout who were 3.5 times more likely to have poor welfare [aPR=3.55 at 95% CI(1.19–5.99)] as compared with the counterparts who had low burnout. Respondents with severe depression were also 3.9 times more likely to have poor welfare [aPR=3.91 at 95% CI(1.12–6.52)] while respondents with moderate depression were 2.5 times more likely to have poor welfare [aPR=2.46 at 95% CI(1.25–6.01)].

Table 3 Responses regarding work environment at organizations

N = 37	Themes	Sum
Unfavorable Comments on Work Environment (*n* = 21)		
• Corruption in district top management	• **HRH**	**HRH** [13]
• Discrimination and inequality prevail.	• **HRH**	
• Follows standard 8 − 5, however, calls and weekend calls are not compensated for.	• **HRH**	
• Generally, it has low staffing levels, limited team-building activities,	• **HRH**	**PAY** [2]
• Good environment, but little and delayed payments	• **PAY**	
• Heavy workload	• **HRH**	**GEN** [6]
• Hectic work & a super specialized hospital. The salary should be for a super specialized hospital.	• **PAY**	
• It's a pathetic work environment.	• **GEN**	
• No job security	• **HRH**	
• No one cares about what is standard or not.	• **GEN**	
• Not good for breastfeeding mothers.	• **HRH**	
• Open communication is lacking.	• **GEN**	
• Overworking and understaffing	• **HRH**	
• No continuous medical education and proper customer care	• **GEN**	
• Some facilities employ only one medical officer with a few days off to man their facilities. Monday to Monday	• **HRH**	
• The intern doctor is like a slave hired through a parole system as they're blamed & accused of anything & everything that's not going on well. And never appreciated for the gruesome loads of good work delivered!	• **HRH**	
• There is bullying and discrimination among workers.	• **HRH**	
• Things done untold sometimes by the authorities	• **HRH**	
• We need more staff to avoid burnout.	• **GEN**	
• We have only two medical officers at the health center.	• **HRH**	
• Work environment substandard	• **GEN**	
Favorable Comment on Work Environment (*n* = 4)		**GEN** [1]
• It is very busy and engaging.	• **GEN**	
• My position is a commission - based one, and work schedules are flexible	• **PAY**	
• My working hours are actually flexible, and my position is commission-based as an intern.	• **HRH**	**PAY** [1]
• Work is for 3 days.	• **HRH**	**HRH** [2]
Neutral or not applicable (*n* = 2)		

Key:• HRH – Human Resources for Health issue• PAY – Pay related issue• GEN – General work environment-related issue

Discussion

Welfare of Ugandan doctors

Doctors in the Central Region of Uganda, face significant welfare challenges despite being in the most resource-concentrated area. The major issues found in this study includes poor working conditions, lack of equipment, and low remuneration. This has grossly affected their mental well-being. This study found high rates of depression, anxiety, and burnout reported among doctors. This finding is similar to those by many other researchers [25, 37–39]. Addressing these issues requires improved mental health support and structural reforms [40].

Table 4 Determinants of poor welfare among Ugandan doctors

Variables	Welfare of Doctors		Total	cPR 95% CI (L-U)	aPR 95% CI (L-U)	*P*-values
	Poor (WHO-5 score < 13)	Good (WHO-5 score ≥ 13				
Gender of respondent						
• Female	13(11.7%)	21(18.9%)	34	1		
• Male	67(60.4%)	10(9.0%)	77	**2.5(0.01–3.61)***	**2.8(1.21–4.17)***	**0.031***
Age of respondent in years:						
• < 30	24(21.6%)	6(5.4%)	30	1	1	0.876
• 31–40	38(34.2%)	16(14.4%)	54	1.10(0.02–1.92)	1.12(0.04–2.94)	
• 41–50	13(11.7%)	05(4.5%)	18	0.11(0.01–0.99)	0.32(0.04–3.99)	
• 51–59	4(3.6%)	02(1.8%)	06	0.51(0.03–1.71)	0.81(0.09–2.99)	
• > 60	01(0.9%)	02(1.8%)	03	0.50(0.01–0.87)	0.70(0.03–0.77)	
Location by Central District						
• Kampala	40(36.0%)	12(10.8%)	52	1	1	0.672
• Mukono	02(1.8%)	2(1.8%)	04	0.01(0.00-0.09)	0.02(0.01–0.59)	
• Wakiso	11(9.9%)	6(5.4%)	17	0.10(0.00-0.99)	0.21(0.03–2.10)	
• Mpigi	00(0.0%)	01(0.9%)	01	0.00(0.00-1.62)	0.10(0.00-1.99)	
• Mityana	00(0.0%)	01(0.9%)	01	0.00(0.00-0.72)	0.10(0.02–0.98)	
• Others	27(24.3%)	9(8.1%)	36	0.81(0.72–3.11)	1.12(0.82–3.88)	
Location by Branch						
• In central branch	49(44.1%)	26(23.4%)	75	1	1	**0.041***
• Non-Central branch	31(27.9%)	5(4.5%)	36	1.1(0.41–2.98)	**1.5(1.31–3.61)***	
Employment Job Title						
• Senior Consultant	00(0.0%)	03(2.7%)	03	1	1	0.757
• Retired	01(0.9%)	00(0.0%)	01	1.01(0.12–2.95)	1.09(0.01–1.93)	
• Consultant	01(0.9%)	05(4.5%)	06	0.02(0.00-0.97)	0.91(0.11–5.10)	
• MOSG	12(10.8%)	05(4.5%)	17	1.06(0.41–1.88)	1.67(0.95–2.07)	
• Public Health Specialist	02(1.8%)	02(1.8%)	04	0.51(0.01–1.77)	0.66(0.05–2.98)	
• SHO	07(6.3%)	00(0.0%)	07	1.71(0.72–4.09)	1.31(0.27–2.88)	
• Medical Officer	54(48.6%)	16(14.4%)	70	1.29(0.69–3.99)	1.34(0.18–3.01)	
• Intern Doctor	03(2.7%)	00(0.0%)	03	0.80(0.09–2.79)	1.22(0.14–2.37)	
Facility level						
• District Hospital	07(6.3%)	03(2.7%)	10	1	1	0.683
• Health Centre 3	05(4.5%)	02(1.8%)	07	1.04(0.15–3.05)	1.16(0.60–3.05)	
• Health Centre 4	09(8.1%)	04(3.6%)	13	1.02(0.32–2.97)	0.2(0.04–1.01)	
• NRH	11(9.9%)	05(4.5%)	16	1.15(0.33–2.86)	1.36(0.71–3.08)	
• NGO	05(4.5%)	02(1.8%)	07	0.31(0.03–1.79)	1.04(0.01–2.77)	
• PNFP hospitals	06(5.4%)	04(3.6%)	10	0.71(0.52–1.09)	1.07(0.22–2.09)	
• Private clinic	02(1.8%)	03(2.7%)	05	1.01(0.49–2.99)	1.19(0.29–2.44)	
• Private company	02(1.8%)	00(0.0%)	02	1.44(0.42–3.49)	1.49(0.76–2.66)	
• Private hospital	11(9.9%)	02(1.8%)	13	1.35(0.25–2.98)	1.16(0.49–2.33)	
• Private Medical Center	10(9.0%)	02(1.8%)	12	0.63(0.09–2.88)	1.51(0.04–3.07)	
• RRH	07(6.3%)	02(1.8%)	09	1.11(0.22–3.01)	1.13(0.27–2.99)	
• University	05(4.5%)	01(0.9%)	06	1.20(0.12–3.45)	1.09(0.19–2.34)	
• Research Institute	00(0.0%)	01(0.9%)	01	1.32(0.29–2.69)	1.80(0.03–2.79)	
Length of current employment:						
• Less than 1 year	15(13.5%)	06(5.4%)	21	1	1	0.711
• 1–2 years	21(18.9%)	09(8.1%)	30	1.1(0.03–2.09)	1.02(0.07–2.59)	
• 2–3 years	11(9.9%)	04(3.6%)	15	1.12(0.18–3.99)	1.21(0.65–3.10)	
• 3–4 years	08(7.2%)	02(1.8%)	10	1.08(0.07–2.62)	1.10(0.91–2.66)	
• 4–5 years	06(5.4%)	03(2.7%)	09	1.00(0.01–2.72)	1.24(0.32–2.98)	
• More than 5 years	19(17.1%)	07(6.3%)	26	1.81(0.62–3.12)	1.20(0.12–3.01)	
Net monthly income						
• UGX > 5 million	01(0.9%)	11(9.9%)	12	1	1	**0.000***
• UGX 2–5 million	58(52.3%)	13(11.7%)	28	**2.51(0.03–2.09)***	**2.72(1.03–2.09)***	
• UGX < 2 million	21(18.9%)	07(6.3%)	71	**2.53(0.18–3.99)***	**2.96(1.18–3.99)***	
Levels of Burnout						
• Low Burnout	15(13.5%)	27(24.3%)	42	1	1	**0.001***
• Moderate Burnout	49(44.1%)	04(3.6%)	53	**2.89(0.17–5.09)***	**3.55(1.19–5.99)***	
• High Burnout	16(14.4%)	00(0.0%)	16	**3.03(0.19–6.07)***	**3.92(1.18–6.76)***	

Table 4 (continued)

Variables	Welfare of Doctors		Total	cPR 95% CI (L-U)	aPR 95% CI (L-U)	*P*-values
	Poor (WHO-5 score < 13)	Good (WHO-5 score ≥ 13				
Depression						
• Mild or no depression	01(0.9%)	22(19.8%)	23	1	1	**0.000***
• Moderate depression	28(25.2%)	05(4.5%)	33	**2.00(0.21–5.11)***	**2.46(1.25–6.01)***	
• Severe depression	51(45.9%)	04(3.6%)	55	**2.02(0.13–5.24)***	**3.91(1.12–6.52)***	
Anxiety						
• Mild or no anxiety	73(65.8%)	23(20.7%)	96	1	1	0.621
• Moderate anxiety	05(4.5%)	05(4.5%)	10	1.13(0.09–2.93)	1.15(0.16–2.02)	
• Severe anxiety	02(1.8%)	03(2.7%)	05	1.11(0.06–2.07)	1.18(0.19–2.19)	

*Denotes statistical significance, cPR =Crude Prevalence Rate, aPR =Adjusted Prevalence Rate, p=Probability value, PNFP=Private-Not-For-Profit, UGX = Ugandan Shillings, NRH = National Referral Hospital, RRH = Regional Referral Hospitals, NGO = Non-Governmental Organization, MOSG=Medical Officer Special Grade, CI = Confidence Interval, U = Upper boundary, L = Lower boundary

Overall life satisfaction of Ugandan doctors

In this study, the overall life satisfactions of doctors were negative. Other studies found varied views. A study in Uganda and Kenya found that most interns were satisfied with their internship job, evidenced by being able to help people, believing they can make a difference through their work and proud of what they can do [37]. The authors further asserted that 62% of Kenyan and 49% of Ugandan felt that they were unable to balance their work and personal life during the internship. This was similar in other studies [38, 41].

Determinants of poor welfare among doctors

This study found that gender of respondents was associated with poor welfare ($p = 0.031$).

Similarly, net monthly income ($p = 0.000$), levels of burnout ($p = 0.001$) and depression ($p = 0.000$) were also found to be determinants of poor welfare. Elsewhere in Uganda, community health workers were found to have higher prevalence of depression ($p < 0.001$), anxiety ($p = 0.029$) and post-traumatic stress disorder (PTSD) ($p < 0.001$) compared to facility-based workers [24]. Perceived stress, burnout, and negative attitude were associated with higher odds of depression [25–27]. Medical students are equally affected [28]. These challenges have significantly affected the productivity of doctors and quality of care given [29–32].

Recommendations

The investigators recommend as follows;

1. **Doctors' welfare plan**: Every organization that employs doctors should have a Doctors' Welfare Plan.
2. **Increased Funding**: Government should allocate more resources to mental health research, programs and infrastructure.
3. **Training and Capacity Building**: Training institutions should expand training programs for doctors and integrate mental health education into medical curricula.
4. **Manageable Workloads**: Health facility managers should allocate manageable workload to doctors to reduce burnout and depression.
5. **Adequate Staffing**: Government and employers should ensure adequate staffing for doctors. They should spare capacity to handle unexpected workload surges.
6. **Safety and Environment**: Employers should ensure secure, well-equipped and sanitary working environment with adequate supplies and medication.

7. **Further Study**: We recommend further studies in similar areas but with a larger sample size than the one used in this study.

Limitations

First, whereas this study examined all aspects of welfare, we did not use Composite Welfare Index. Composite Welfare Index is the aggregated score combining standardized domains (economic, mental health, burnout, job satisfaction, working conditions). For this reason, the quality of the study could have been compromised because of the many subjective nature applied.

Secondly, since sharing the link for questionnaire was via WhatsApp group, this automatically excluded potential respondents who were not on WhatsApp.

Thirdly, being a small sample size, the result could be spurious, as small sample size limits research validity by reducing statistical power (making it harder to detect true effects), inflating random variability, and restricting the generalizability of findings to the broader population. Hence similar study is recommended with larger sample size.

Conclusions

Poor welfare among doctors is a multifaceted problem driven by a combination of financial, environmental and institutional factors. The key determinants include inadequate compensation, extreme workload pressures, poor working conditions, and significant psychological stress, which often lead to burnout and high rates of staff turnover. If nothing is done about the problem, productivity decreases as well as the quality of care given to patients.

Abbreviations

U.M.A	Uganda Medical Association
ACHEST	African Center for Global Health and Social Transformation
SACCO	Savings And Credit Cooperative Organization
WHO	World Health Organization
MO	Medical Officer
MOSG	Medical Officer Special Grade
UBOS	Uganda Bureau of Statistics
MBChB	Bachelors of Medicine and Bachelor of Surgery
IRB	Institutional Review Board
SHO	Senior House Officer
NGO	Non-Governmental Organization
PNFP	Private-Not-for-Profit
HC	Health Center
NRH	National Referral Hospital
NSSF	National Social Security Fund
NPS	Net Promoter Score
KMA	Kenya Medical Association
PWD	Persons with Disability
UGX	Ugandan Shilling
NCDs	Non-Communicable Diseases
HRH	Human Resources for Health

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Data availability The data supporting the findings of this study are available with the corresponding author but restrictions apply to the availability of these data, which were used under license for the current study, and so, are not publicly available. Data are, however, available from the corresponding author upon reasonable request and with permission of the Uganda Medical Association Central branch.

Declarations

Ethical approval and consent to participate The authors followed the ethical procedures governing research with human participants. Approval was granted by Mulago Hospital research ethic committee (MHREC-2851) and the required consent to participate sought from the participants before filling the forms. Identities of the respondents were anonymized. Participation was voluntary. The study adhered to the Helsinki declaration.

Consent for publication The authors do consent for the publication of this work.

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Competing interests The authors declare no competing interests.

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