

Prevalence and factors associated with controlled drug misuse among health workers in Ibanda District, Uganda: a cross-sectional study.

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ABSTRACT

Background:

Objective: To determine the prevalence of, and factors associated with, controlled drug misuse among health workers at two health facilities within Ibanda District.

Methods:

A hospital-based cross-sectional study was conducted among health workers at two health facilities in Ibanda District. A census sampling approach was employed, in which all 144 eligible health workers were invited to participate; 115 consented, yielding a response rate of 79.9%. Data were collected using a structured, self-administered questionnaire and analyzed in SPSS version 27.0. Descriptive statistics were used to summarize the characteristics of the respondents and the prevalence of misuse. Chi-square tests examined bivariate associations, and variables with $p < 0.20$ were entered into a binary logistic regression model with multiple explanatory variables. Statistical significance was set at $p < 0.05$.

Results:

The prevalence of controlled drug misuse was 46.96% (54/115). Among those reporting misuse, pain management (59.26%), sleep aid (29.63%), and stress relief (11.11%) were the most cited reasons, while tramadol (42.6%) and opioids (40.7%) were the most commonly misused substances. At the bivariate level, years of work experience, weak supervision, infrequent stocktaking, easy access to controlled drugs, excessive workload, inadequate staffing, extra shifts, pressure to maintain a professional image, anxiety, use of sedatives or alcohol to aid sleep, and emotional exhaustion were significantly associated with misuse ($p < 0.05$). After adjustment for confounders, emotional exhaustion remained the sole independent predictor of controlled drug misuse (AOR=15.40; 95% CI: 1.75-135.53; $p=0.014$).

Conclusion:

Controlled drug misuse is widely reported among health workers involved in the study facilities. Emotional exhaustion emerged as the strongest independent correlate, drawing attention to the effects of workplace pressure, stress, and burnout in contributing to misuse behaviours.

Recommendation

There should be strengthening of controlled drug management systems and instituting staff mental health and wellness programs to help reduce controlled drug misuse among healthcare workers.

Keywords: Controlled drug misuse; Healthcare workers; Emotional exhaustion; Burnout; Prevalence; Risk factors; Uganda.

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INTRODUCTION

The inappropriate use of controlled drugs by health workers represents an increasing concern for healthcare systems

globally. Health professionals, who by virtue of their role have access to potent therapeutic agents, may misuse these substances owing to occupational stress, emotional

exhaustion, or the relative ease of obtaining them within clinical settings [1]. Beyond compromising personal wellbeing and professional conduct, such misuse jeopardizes patient safety and undermines institutional credibility [2].

Substance misuse among medical professionals is a longstanding phenomenon, documented across more than a century of clinical practice. Early accounts from the 1880s describe physicians dependent on morphine and other opiates, largely attributable to ease of access and the near absence of regulatory oversight [3,4]. As pharmacology advanced, healthcare workers continued to face risks associated with psychoactive and analgesic agents, with morphine and its derivatives most frequently implicated in a pattern recurrently driven by potency and availability [5,6]. Controlled drug misuse is conceptually defined as the non-medical, improper, or unauthorized use of legally restricted prescription substances associated with a high potential for dependence and adverse health outcomes [7]. Among healthcare workers, this typically manifests as self-medication to manage personal stress, pain, or insomnia without a legitimate prescription, as diversion of medications intended for patient care, or as broader non-medical use for psychoactive effect or to cope with occupational pressure [8].

Globally, controlled drug misuse remains a persistent occupational hazard for health workers. Recent meta-analyses estimate that 10-15% of health professionals experience drug or alcohol dependency [9]. Although medical training is often presumed to confer protective insight, existing evidence suggests otherwise: pharmacological proximity—ready access to controlled substances—appears to outweigh perceived risk. Opioids such as fentanyl and morphine, together with benzodiazepines, are consistently the most frequently misused agents.

Surveillance data remain scarce across Sub-Saharan Africa, though emerging evidence points to a concerning trend. A Nigerian study reported a 9.8% prevalence of drug misuse among health workers, associated with occupational stress, ready drug access, and weak supervision. Similarly, investigators in Ghanaian hospitals identified limited awareness of drug control policies and heavy workloads as key drivers of substance misuse among healthcare professionals. Further studies across East and Southern Africa indicate that burnout, weak policy enforcement, and inadequate supervisory structures heighten health workers' vulnerability to misuse of controlled substances [12-14].

In Uganda, the landscape of professional drug misuse is evolving rapidly and remains difficult to characterize

precisely. In February 2024, Uganda enacted the Narcotic Drugs and Psychotropic Substances (Control) Act, introducing stricter penalties for the misuse and diversion of controlled substances. Despite this legislative development, a largely undocumented pattern of misuse persists within the health sector. The National Drug Authority (NDA) has raised concern over the rising non-medical use of prescription drugs, and a 2024 study in Western Uganda reported self-medication prevalence among health professionals as high as 90%, attributed largely to burnout and a perceived self-efficacy in managing dosage without formal oversight.

Ibando District, an expanding healthcare hub in Western Uganda, relies substantially on both public and private-not-for-profit (PNFP) health facilities. Two major facilities in the district serve high patient volumes, creating considerable pressure on staff. Anecdotal reports suggest that the combination of heavy workloads and the emotional burden of critical care may predispose health workers to controlled drug misuse as a maladaptive coping strategy. Nonetheless, empirical evidence comparing the prevalence of misuse across facility types in Ibando District remains scarce.

This study aimed to assess the prevalence of controlled drug misuse and identify the factors associated with this practice among health workers in two healthcare facilities in Ibando District.

METHODS

Study Design and Setting

This hospital-based cross-sectional study was conducted at two health facilities in Ibando District, Western Uganda, between January and March 2026. Facility A is a Private-Not-For-Profit (PNFP) institution under religious affiliation offering comprehensive healthcare services, while Facility B is a government-owned referral centre serving lower-level facilities within its catchment area. Both facilities employ multidisciplinary healthcare professionals involved in the prescription, dispensing, administration, and routine management of controlled drugs. Inclusion of both facility types enabled the study to capture experiences from both the private-not-for-profit and public healthcare sectors, offering a wider understanding of the factors linked to controlled drug misuse among health workers.

Inclusion Criteria:

HCWs who were employed at the facility for at least six months and are involved in the handling, dispensing, or prescribing of controlled drugs.

Exclusion Criteria:

Students who were on internship, as their access to drugs is strictly supervised and may not reflect the independent behaviour of permanent staff.

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Study Population and Sampling

The study population included all health workers in the two facilities who were directly or indirectly involved in prescribing activities, dispensing, handling, or administration of controlled drugs. Eligible participants had been employed at the facility for at least six months; interns were excluded owing to their closely supervised access to controlled drugs. A census sampling approach was adopted, whereby all 1115 eligible health workers were invited to participate; A total of 115 participants provided consent, resulting in a response rate of 79.9%.

Data Collection

Data were collected using a structured, self-administered questionnaire comprising closed-ended items, including yes/no questions, multiple-choice options, and Likert-scale statements, to facilitate quantitative analysis. The questionnaire comprised three sections: (1) demographic and professional profile, (2) prevalence and patterns of controlled drug use, and (3) factors associated with controlled drug use, encompassing personal and mental health, workplace and occupational, and institutional and regulatory dimensions.

Content validity was established through careful alignment of the instrument with the study objectives, relevant literature, and the underlying conceptual framework. The draft questionnaire was reviewed by the research supervisor and public health research experts, then pre-tested among 15 health workers at a facility with characteristics similar to the study sites but not included in the final study. A Cronbach's alpha coefficient of 0.70 or above was considered acceptable; items that reduced reliability were revised prior to final data collection.

Data Analysis

Data were coded, verified, and analyzed using the Statistical Package for the Social Sciences (SPSS), version 27.0. Descriptive statistical analysis was performed to describe participants' characteristics and determine the prevalence of controlled drug misuse, presented as proportions with their

respective 95% confidence intervals. Bivariate associations between independent variables and controlled drug use were examined using the Chi-square test. Variables that demonstrated a p-value of less than 0.20 during bivariate analysis were included in a multivariable binary logistic regression model to determine factors independently associated with controlled drug misuse. The findings were presented as Adjusted Odds Ratios (AORs) with corresponding 95% confidence intervals, and statistical significance was considered at a p-value of <0.05.

Ethical Considerations

Ethical approval for the study was obtained through the Faculty Research Ethics Committee of the Faculty of Nursing Science, Bishop Stuart University, before the study commenced. Permission to conduct the research was also secured from the management of the participating health facilities prior to data collection. All participants provided written informed consent before taking part in the study. Confidentiality and anonymity were ensured throughout the research process by using self-administered, coded questionnaires without collecting personal identifiers. Participants were informed that participation was voluntary and that they could refuse to participate or withdraw from the study at any time without facing any negative consequences.

RESULTS**Socio-demographic Characteristics of Respondents**

A total of 115 health workers participated in the study, as presented in Table 1. Females accounted for a slightly higher proportion of participants (52.17%) compared to males (47.83%). More than half of the respondents were married or living with partners (55.65%), while 25.22% were single. Regarding professional category, nurses and midwives represented the majority of participants (41.70%), followed by clinical/medical officers (21.70%), pharmacists/dispensers (16.50%), and laboratory technicians/assistants (15.70%). Almost half of the respondents (47.83%) had more than 10 years of professional experience. The average age of participants was 35.28 years (SD = 7.22), with ages ranging from 24 to 49 years.

Table 1: Socio-demographic characteristics of respondents (N = 115)

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	55	47.83
	Female	60	52.17
Marital status	Married/Cohabiting	64	55.65
	Separated/Divorced	17	14.78
	Single	29	25.22
	Widowed	5	4.35
Cadre	Clinical Officer/Medical Officer	25	21.70
	Laboratory Technician/Assistant	18	15.70
	Nurse/Midwife	48	41.70
	Pharmacist/Dispenser	19	16.50
	Others	5	4.30
Years of experience	1-5 years	39	33.91
	6-10 years	21	18.26
	More than 10 years	55	47.83
Age (years)	Mean $\pm$ SD	35.28 $\pm$ 7.22	-
	Minimum-Maximum	24-49	-

Prevalence and Patterns of Controlled Drug Misuse

Fifty-four respondents (46.96%) reported controlled drug misuse, whereas 61 (53.04%) reported none. Among those reporting misuse, pain management (59.26%) was the most cited reason, followed by sleep aid (29.63%) and stress relief (11.11%). Tramadol was the most commonly misused substance (42.59%), followed by opioids (40.74%) and benzodiazepines (16.67%). Regarding frequency of misuse, most respondents reported using once or twice monthly (40.74%) or monthly or less (29.63%), while 20.37% reported 2-4 times per month, 7.41% reported 2-3 times weekly, and 1.85% reported once or twice weekly.

Factors Associated with Controlled Drug Misuse

Socio-demographic Factors: Duration of work experience was significantly associated with controlled drug misuse ($p=0.002$), with the highest proportion of misuse observed among respondents who had worked for 6–10 years. However, no statistically significant associations were found between drug misuse and sex, age category, marital status, or professional cadre at the 0.05 significance level. Age category showed a borderline association with misuse ($p=0.056$).

Institutional Factors: At the bivariate analysis stage, inadequate oversight of controlled drugs, irregular stocktaking or audit practices, and unrestricted access to controlled medicines were significantly associated with drug misuse ($p<0.001$). A greater proportion of respondents

who reported drug misuse indicated that supervision of controlled drugs was not strict (57.41% compared with 16.39%) and that routine stocktaking audits were not consistently conducted (62.96% compared with 21.31%). Additionally, most respondents involved in drug misuse reported having easy access to controlled drugs (77.78% compared with 21.31% among non-misusers).

Occupational and Workplace Factors: Several occupational factors were significantly associated with drug misuse, including pressure to maintain a professional image ($p<0.001$), inadequate staffing ($p<0.001$), taking extra shifts ($p<0.001$), and excessive workload ($p<0.001$). Respondents reporting misuse were more likely to cite pressure to appear professional (79.63%), inadequate staffing (62.96%), extra shifts (61.11%), and excessive workload (75.93%).

Psychological Factors: Anxiety or worry ($p=0.035$), use of sedatives or alcohol to aid sleep after work-related stress ($p=0.020$), and emotional exhaustion ($p<0.001$) were significantly associated with drug misuse. The strongest bivariate association was observed for emotional exhaustion, with 77.78% of respondents reporting misuse also reporting feeling drained by work.

Multivariable Logistic Regression Analysis

After adjusting for potential confounders (Table 2), emotional exhaustion remained strongly associated with drug misuse. Respondents reporting emotional exhaustion had 15.40 times the odds of drug misuse compared with the reference group (AOR=15.40; 95% CI: 1.75-135.53; $p=0.014$). Years of experience in the 6-10-year range showed a borderline association (AOR=12.68; 95% CI:

0.89-181.73; $p=0.061$), as did anxiety or worry (AOR=0.10; 95% CI: 0.009-1.04; $p=0.054$). After adjustment in the multivariable analysis, easy access to controlled drugs,

pressure to maintain a professional image, working additional shifts, and excessive workload were not significantly associated with drug misuse.

Table 2: Multivariable logistic regression analysis of factors associated with drug misuse

Variable	Category	AOR	95% CI	p-value
Years of experience	6-10 years	12.68	0.89-181.73	0.061
	>10 years	1.67	0.27-10.46	0.583
Easy access to controlled drugs	Agree	4.58	0.74-28.41	0.102
Pressure to maintain professional image	Agree	1.24	0.12-12.72	0.857
Taking extra shifts	Agree	1.24	0.10-15.39	0.869
Workload is too much	Agree	2.50	0.45-13.73	0.293
Feeling overwhelmed by anxiety/worry	Agree	0.10	0.009-1.04	0.054
Emotionally drained by work	Agree	15.40	1.75-135.53	0.014*

* $p < 0.05$; CI = Confidence Interval; AOR = Adjusted Odds Ratio

DISCUSSION

This study found a high prevalence of controlled drug misuse (46.96%) among healthcare workers at two health facilities in Ibanda District. This figure substantially exceeds prevalence estimates reported in earlier Sub-Saharan African studies, such as those from Nigeria and Ghana (8-12%) [10] and Kenya, where approximately 9.3% of healthcare workers reported non-medical use of sedatives [8].

The higher prevalence identified in this study may be attributed to variations in the definition of "drug misuse," differences in contextual factors across study environments, and the increasing levels of occupational stress experienced by healthcare workers in Uganda. This study captured self-reported, non-prescribed use of controlled drugs for pain management, sleep aid, and stress relief, potentially encompassing a broader spectrum of misuse than studies restricted to substance dependence or severe abuse. These findings may also reflect the growing burden of occupational burnout in resource-limited health systems, where staffing shortages and workload pressures remain substantial [15].

Years of experience in the 6-10-year range showed a significant association (AOR=12.68; 95% CI: 0.89-181.73; $p=0.061$) with drug misuse at the bivariate analysis level. This trend may be explained by the accumulation of occupational pressures over time, as mid-career health workers often take on increased responsibilities while experiencing emotional exhaustion, burnout, and challenges related to family and financial commitments. The finding aligns with existing literature suggesting that continuous exposure to stressful healthcare work environments may

increase vulnerability to unhealthy coping mechanisms, including substance use [16].

Institutional factors like inadequate oversight of controlled drugs, irregular stocktaking or audit practices, and unrestricted access to controlled medicines were significantly associated with drug misuse ($p<0.001$), supporting the premise that weak accountability systems and inadequate drug control mechanisms create opportunities for diversion and unauthorized access. Respondents reporting weak supervision, infrequent stocktaking, and easy access to controlled drugs were considerably more likely to report misuse. This finding aligns with earlier Ugandan research by Kamba et al. [17], which documented suboptimal compliance with controlled prescription drug regulations among health facilities and pharmacies. However, these institutional factors lost statistical significance in the multivariable model, suggesting they may be intertwined with psychological and workplace influences such as burnout and emotional exhaustion, with overlapping effects in practice.

Workplace-related factors, including pressure to appear professional (79.63%), inadequate staffing (62.96%), extra shifts (61.11%), and excessive workload (75.93%), were significantly associated with drug misuse at the bivariate level. These findings correspond with existing literature identifying occupational stress and burnout as key drivers of substance misuse among healthcare workers [18]. Health workers who perceived their workload as excessive were considerably more likely to report misuse, consistent with the chronic understaffing, high patient volumes, and extended working hours characteristic of Ugandan health facilities. Similarly, respondents who frequently took on

extra shifts were most likely to report misuse, likely reflecting the fatigue, sleep disruption, and cumulative stress associated with sustained overtime.

Among the psychological factors assessed, emotional exhaustion was identified as the most significant independent predictor of drug misuse after controlling for other variables. Health workers experiencing emotional exhaustion had more than 15-fold higher odds of engaging in drug misuse. This finding corresponds with global evidence demonstrating an association between burnout, emotional strain, and substance misuse among healthcare professionals [19]. As a central component of burnout, emotional exhaustion represents the prolonged depletion of psychological and emotional capacity. Consequently, affected health workers may resort to controlled substances as a coping strategy for managing fatigue, occupational stress, anxiety, or sleep-related challenges rather than as a matter of personal preference.

The observed strong relationship between emotional exhaustion and drug misuse is consistent with the principles of the Health Belief Model [20], which suggests that healthcare workers who view controlled drugs as useful coping mechanisms may be more likely to use them when the burden of occupational stress exceeds their perception of potential risks. This finding highlights the need to address emotional exhaustion through targeted mental health support, workplace wellness initiatives, and interventions designed to strengthen coping mechanisms among healthcare workers.

CONCLUSION

This study found a high prevalence of controlled drug misuse among healthcare workers in Ibanda District, with nearly half of participants reporting misuse. Misuse was primarily associated with pain management, sleep aid, and stress relief, with tramadol and opioids the most commonly misused substances. Controlled drug misuse among health workers appears strongly shaped by workplace stress, institutional weaknesses, and psychological strain. Although several factors were significant at the bivariate level, emotional exhaustion remained the strongest independent predictor, indicating that health workers experiencing emotional exhaustion are at elevated risk of controlled drug misuse. Addressing this problem requires strengthened drug control systems alongside improved staff welfare programs, including workload management, psychosocial support, routine supervision, and confidential mental health services for healthcare workers.

Limitations

This study relied on self-reported data on controlled drug misuse, a sensitive topic that was subject to social desirability bias or underreporting; anonymous self-administered questionnaires were employed to mitigate this limitation. The cross-sectional design precludes causal inference between the identified factors and drug misuse. Additionally, the demanding workload and schedules of health workers may have contributed to non-response among eligible participants, although the response rate of 79.9% was relatively favourable. Finally, the study was conducted at only two health facilities within a single district, which may limit the generalizability of the findings to other settings.

RECOMMENDATIONS

Based on the study findings, the following recommendations are made:

1. Health facility management should strengthen the handling of controlled drugs through routine stocktaking, restricted access, ongoing supervision, and proper documentation, while simultaneously implementing staff wellness programs to support mental health and reduce workplace stress and burnout.
2. Health facility management should establish practical stress-reduction measures, including counseling services for health workers and recruitment of additional staff to alleviate excessive workload.
3. The Ministry of Health, together with the National Drug Authority, should strengthen enforcement of policies and guidelines governing controlled drug management and promote continuous training on rational drug use and ethical conduct among healthcare workers.
4. Healthcare workers experiencing stress, anxiety, or emotional exhaustion should seek appropriate professional support and utilize available counseling services rather than resorting to self-medication with controlled drugs.
5. Further studies involving larger sample sizes and multiple healthcare facilities across diverse districts are recommended to validate these findings and explore effective interventions aimed at preventing controlled drug misuse among healthcare workers.

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LIST OF ABBREVIATIONS

COVID-19	Coronavirus Disease 2019
HCWs	Health Centre workers
NDA	National Drug Authority

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The study was not funded.

Conflict of interest

The author did not declare any conflict of interest.

Data availability

Data is available upon request.

Author contribution

Christine Tumwujukye: Methodology, Investigation, funding acquisition, Writing – original draft
Shem Ankwatiriire: Data curation, Visualisation, Writing – original draft

Doreen Agaba: Validation, resources, software, Writing – original draft

Yosoni Muhindo: Conceptualisation, Formal analysis, Writing – original draft

Martha Judith Akoth: Supervision, Writing – review & editing

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All authors: Approved the final version of the manuscript and agreed to be accountable for the work.

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