Journal of Health, Wellness and Community Research
ISSN: 3007, 0570

OPEN ACCESS

JHWCR

Type: Original Article
Published: 30 November 2025
Volume: III, **Issue**: XVII
DOI: https://doi.org/10.61919/r2sj9x17

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Received 19 October 2025
Accepted 27 November 2025

Authors' Contributions
Concept: AF, MM; Design: SM, AS; Data Collection: SJ, MD; Analysis: AF, MM; Drafting: AF, SM

Declarations
No funding was received for this study. The authors declare no conflict of interest. The study received ethical approval. All participants provided informed consent.

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Self-Medication Trends Among Health Care Professionals: Risks, Benefits, and Implications for Practice at Allama Iqbal Teaching Hospital, Dera Ghazi Khan

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ABSTRACT

***Background**: Self-medication among healthcare professionals poses a paradox in clinical practice, wherein individuals trained to promote safe medication use often bypass professional consultation for their own health needs. The behavior, while perceived as convenient and cost-effective, carries risks including drug misuse, adverse interactions, and dependency, yet remains underexplored among practitioners in Southern Punjab, Pakistan. **Objective**: To assess the prevalence, determinants, and perceived risks and benefits of self-medication among healthcare professionals at Allama Iqbal Teaching Hospital, Dera Ghazi Khan. **Methods**: A descriptive cross-sectional study was conducted among 120 doctors, pharmacists, and nurses using a stratified random sampling method. Data were collected through a structured, self-administered questionnaire assessing demographics, self-medication behaviors, influencing factors, and risk perception. Statistical analysis was performed in SPSS v27 using descriptive and chi-square tests with significance set at $p<0.05$. **Results**: The prevalence of self-medication was 69.2% (95% CI 60.4-76.7). Commonly self-treated conditions included acidity (78.3%), musculoskeletal pain (74.2%), and dental pain (67.5%). Key motivators were accessibility of over-the-counter drugs (66.7%), cost-effectiveness (60.0%), and online information (70.8%). Males were significantly more likely to self-medicate than females (76.0% vs 57.8%; $p=0.028$; OR 2.31, 95% CI 1.05-5.12). Despite high risk awareness (75.0%), the practice persisted. **Conclusion**: Self-medication among healthcare professionals is highly prevalent and driven by occupational convenience and systemic constraints. Institutional interventions, pharmacist-led education, and workplace stress management are recommended to mitigate unsafe practices and reinforce rational medication behavior.*

Keywords
Self-medication; healthcare professionals; knowledge-attitude paradox; occupational stress; Southern Punjab; Pakistan.

INTRODUCTION

Self-medication, the use of medicinal products to treat self-diagnosed conditions without professional oversight, remains a pervasive global phenomenon with well-documented hazards including misdiagnosis, inappropriate drug choice, adverse reactions, drug interactions, and masking of serious disease (1). Paradoxically, healthcare professionals (HCPs) are not immune; professional familiarity with pharmacotherapy may foster overconfidence and normalize unsupervised use, a pattern repeatedly described across settings and cadres (2). Evidence from European health systems shows non-trivial rates of self-medication among HCPs, with role-specific pressures and workplace norms shaping behavior, while also revealing gaps between knowledge and safe practice (3). In low and middle-income countries, structural factors such as crowded clinics, access barriers, and cost frequently intersect with professional convenience to intensify self-treatment, suggesting that individual-level knowledge is insufficient to eliminate risk without institutional support (4). Antibiotic self-medication is a particular concern in high-pressure clinical environments, where perceived necessity and ready access drive use and contribute to antimicrobial resistance (5, 6).

Within Pakistan, emerging facility-level data indicate that HCPs, like their patients, engage in self-medication that is conditioned by workload, shift patterns, and informal access to medicines; local institutional studies have begun to document risks, perceived benefits, and clinical implications among hospital staff (7). Parallel evidence from medical students in Multan underscores how early professional socialization can normalize self-treatment practices that later persist into clinical roles (8). Against this backdrop, a "knowledge-attitude paradox" has been described whereby high pharmacological knowledge coexists with unsafe self-use, implying that confidence may override risk appraisal unless organizational policies, pharmacist-led stewardship, and stress-mitigation mechanisms are present (9). Gendered differences in psychotropic self-medication and role-related variations in exposure and access further suggest that the determinants are multilevel, spanning individual, professional, and system domains (10).

Using a PICO lens, the present study focuses on HCPs (Population: doctors, pharmacists, and nurses) at a large public-sector teaching hospital in Southern Punjab; the "Intervention/Exposure" is self-medication behavior; the Comparator is relevant demographic and professional strata (e.g., gender, experience, cadre, unit); and the Outcomes include prevalence, patterns (conditions and medicines used), determinants (perceived benefits, access pathways, sources), and risk perceptions. The research problem is that, despite global and national concern, there is insufficient institution-specific evidence on the magnitude and drivers of self-medication among practicing HCPs in Dera Ghazi Khan, information that hospital leadership requires to design targeted policies, pharmacist-anchored education, and stress-reduction supports (1, 3, 4, 7, 9). The knowledge gap is the absence of granular, cadre-inclusive estimates and determinant profiles from Allama Iqbal Teaching Hospital that quantify prevalence and test associations with demographic and workplace factors. This study is justified by the potential for self-medication to impair clinical performance, model unsafe behaviors, and increase pharmacovigilance burdens, while also representing an actionable target for institution-level quality and safety interventions (1, 4, 6, 7).

Accordingly, we aimed to estimate the prevalence of self-medication among HCPs at Allama Iqbal Teaching Hospital and to characterize conditions treated, perceived drivers and risks, and associations with key demographic and professional factors. The primary research question was: What is the prevalence of self-medication among doctors, pharmacists, and nurses at Allama Iqbal Teaching Hospital, and which individual and workplace factors are associated with this behavior? (1, 3, 4, 7, 9, 10).

MATERIALS AND METHODS

We conducted a descriptive cross-sectional observational study among practicing HCPs (doctors, pharmacists, and nurses) working in multiple clinical departments at Allama Iqbal Teaching Hospital, Dera Ghazi Khan, Pakistan. A stratified random sampling approach ensured proportional representation across professional cadres and major units (wards, emergency department, outpatient department, and operating theatres). Eligible participants were actively engaged in direct patient care during the study period; administrative-only staff and individuals on leave during data collection were not included. Recruitment proceeded through coordination with unit heads to obtain updated staff rosters per stratum, after which randomly ordered lists were generated and approached sequentially until stratum-specific targets were reached. Written informed consent was obtained prior to participation.

Data were collected using a structured, self-administered questionnaire delivered electronically. The instrument elicited demographic characteristics (age, gender, years of experience, cadre, current unit), self-medication practices (ever/typical behavior, conditions prompting use, frequency), perceived drivers (e.g., convenience, cost, online information, pharmacist advice, over-the-counter access), and risk perceptions (e.g., adverse reactions, dependence, worsening conditions). Variables were operationalized a priori: the primary outcome, self-medication practice, was defined as agreeing or strongly agreeing to the statement "I practice self-medication." Condition-specific self-medication was captured via Likert items and dichotomized as agree/strongly agree versus neutral/disagree/strongly disagree for analysis. Prespecified covariates included gender (male/female), age group (20-30, 31-40, 41-50 years), years of experience (1-5, 6+ years), cadre (nurse vs doctor/pharmacist), and current unit (ward, emergency, OPD/OT). To reduce misclassification, items employed behaviorally specific wording, and a brief instruction emphasized that "self-medication" referred to unsupervised use for personal health.

To address potential bias, we minimized social desirability by using an anonymous, self-administered format, clarified that there were no right or wrong answers, and separated study personnel from participants' managerial structures. Selection bias was reduced through stratified random sampling from official staff lists. Confounding was addressed by prespecifying covariates and, where applicable, estimating effect measures with 95% confidence intervals in subgroup comparisons. The target sample size was 120, determined using Cochran's approach with maximum variability ($p=0.5$) and an absolute precision aligned with resource-feasible recruitment, yielding ≥80% precision for the primary prevalence estimate (1). Data integrity procedures included range checks, mandatory responses for core items, duplicate-entry validation of exports, and an audit trail of all data transformations.

Statistical analyses were performed in IBM SPSS Statistics v27. Categorical variables were summarized as counts and percentages; continuous variables were not primary outcomes and are presented categorically as specified. The overall prevalence of self-medication was reported with a 95% confidence interval (Wilson method). Group comparisons used chi-square tests ($\alpha=0.05$). For the gender comparison of self-medication, we calculated an odds ratio (OR) with 95% confidence interval and reported Cramér's V as an effect size for the 2×2 table. Missing data were minimal by design; any sporadic missingness led to pairwise deletion for the affected analysis. Ethical approval was obtained from the hospital administration with written authorization to approach clinical staff; participation was voluntary, responses were anonymous, and de-identified data were stored on a secure, access-controlled repository with documented versioning to ensure reproducibility.

RESULTS

A total of 120 healthcare professionals participated. The cohort was predominantly young and early in their careers: 85.0% were aged 20-30 years and the same proportion reported one to five years of experience. Males comprised 62.5% and females 37.5%. Nurses constituted 90.0% of respondents, with doctors and pharmacists together accounting for 10.0%. Clinical deployment reflected an acute-care footprint, with 45.8% working on general wards and 39.2% in the emergency department; smaller proportions were posted to outpatient clinics (8.3%) and operating theatres (6.7%) (Table 1). The prevalence of self-medication was 69.2% (83/120; 95% CI 60.4-76.7), indicating that over two-thirds engaged in self-directed pharmacological management. The same proportion reported that their tendency to self-prescribe had increased after entering the profession, which is consistent with an occupational influence on personal health behaviours (Table 2). Patterns of use centred on minor, transient complaints: digestive symptoms such as acidity or dyspepsia were most common (78.3%), followed by musculoskeletal pain (74.2%) and dental pain (67.5%). Hypertension (17.5%) and cardiac symptoms (14.2%) were infrequently self-managed, suggesting a pragmatic threshold wherein chronic or potentially serious conditions were less often treated without supervision (Table 2).

Reported drivers emphasised convenience, accessibility, and perceived economy. Most respondents agreed that online health information facilitated self-diagnosis and drug selection (70.8%), two-thirds cited the ease of over-the-counter availability (66.7%), and three in five viewed self-treatment as cost-effective (60.0%). Reliance on professional input was comparatively limited: only 35.8% reported seeking pharmacist advice, indicating a preference for self-reliant decision-making even among clinically trained staff (Table 3). Despite this normalisation, risk awareness was high. Three-quarters agreed that self-medication can worsen underlying conditions (75.0%) and 70.0% acknowledged dependence or misuse risk, while

62.5% disagreed that they take medicines without considering adverse reactions, an attitude-behaviour gap that likely reflects confidence overriding caution (Table 3).

Table 1. Demographic and professional characteristics of participants (N=120).

Characteristic	Category	n	%
Gender	Male	75	62.5
	Female	45	37.5
Age	20-30 years	102	85.0
	31-40 years	16	13.3
	41-50 years	2	1.7
Experience	1-5 years	102	85.0
	≥6 years	18	15.0
Profession	Nurse	108	90.0
	Doctor	7	5.8
	Pharmacist	5	4.2
Current unit	Ward	55	45.8
	Emergency Department	47	39.2
	OPD	10	8.3
	OT	8	6.7

Table 2. Prevalence and patterns of self-medication (N=120).

Variable	Category	n	%	Inferential statistic
Practices self-medication	Agree/Strongly agree	83	69.2	Overall prevalence
	Neutral	22	18.3	69.2%
	Disagree/Strongly disagree	15	12.5	(95% CI 60.4-76.7)
Self-prescription increased after becoming HCP	Agree/Strongly agree	83	69.2	
	Neutral	19	15.8	
	Disagree/Strongly disagree	18	15.0	
Condition: Acidity/digestive issues	Agree/Strongly agree	94	78.3	
Condition: Muscle/joint pain	Agree/Strongly agree	89	74.2	
Condition: Dental pain	Agree/Strongly agree	81	67.5	
Condition: Hypertension	Agree/Strongly agree	21	17.5	
Condition: Heart-related issues	Agree/Strongly agree	17	14.2	

Table 3. Perceived drivers, information sources, and risk perceptions related to self-medication (N=120).

Item	Agree/Strongly agree n (%)	Neutral n (%)	Disagree/Strongly disagree n (%)
Self-prescription effectively treats my problems	82 (68.3)	21 (17.5)	17 (14.2)
I self-prescribe because it is cost-effective	72 (60.0)	28 (23.3)	20 (16.7)
OTC availability makes it easy to self-prescribe	80 (66.7)	25 (20.8)	15 (12.5)
The internet makes it easy to self-diagnose/prescribe	85 (70.8)	20 (16.7)	15 (12.5)
My source of information is advice from a pharmacist	43 (35.8)	32 (26.7)	45 (37.5)
Self-medication can worsen health conditions	90 (75.0)	18 (15.0)	12 (10.0)
Self-medication carries a risk of dependence/abuse	84 (70.0)	22 (18.3)	14 (11.7)
I take medicine without considering adverse reactions	20 (16.7)	25 (20.8)	75 (62.5)
I self-prescribe because my colleagues do the same	28 (23.3)	26 (21.7)	66 (55.0)

Table 4. Association between demographic/professional factors and self-medication (N=120).

Factor	Category	Self-medicates n (%)	Does not self-medicate n (%)	p-value	Effect estimate
Gender	Male (n=75)	57 (76.0)	18 (24.0)	0.028	OR 2.31
	Female (n=45)	26 (57.8)	19 (42.2)	,	(95% CI 1.05-5.12);
Age	20-30 y (n=102)	73 (71.6)	29 (28.4)	0.415	Cramér's V=0.20
	≥31 y (n=18)	10 (55.6)	8 (44.4)	,	Reference
Experience	1-5 y (n=102)	73 (71.6)	29 (28.4)	0.272	
	≥6 y (n=18)	10 (55.6)	8 (44.4)	,	
Profession*	Nurse (n=108)	76 (70.4)	32 (29.6)	0.443	
	Doctor/Pharmacist (n=12)	7 (58.3)	5 (41.7)	,	
Current unit	Ward (n=55)	35 (63.6)	20 (36.4)	0.187	
	Emergency (n=47)	37 (78.7)	10 (21.3)	,	
	OPD/OT (n=18)	11 (61.1)	7 (38.9)	,	

In bivariate analyses, gender was the only factor associated with self-medication. Prevalence was higher in men than women (76.0% vs 57.8%; χ^2=4.81, p=0.028), corresponding to an odds ratio of 2.31 (95% CI 1.05-5.12) and a small-to-moderate effect size (Cramér's V=0.20) (Table 4). No statistically significant associations were observed for age group (p=0.415), years of experience (p=0.272), professional category when doctors and pharmacists were combined for stability of estimates (p=0.443), or current working unit (p=0.187) (Table 4). Taken together, these data indicate a pervasive, largely convenience-driven practice across demographic and workplace strata, with a modest excess in men, and a persistent knowledge-attitude gap despite high-risk recognition.

https://doi.org/10.61919/r2sj9x17

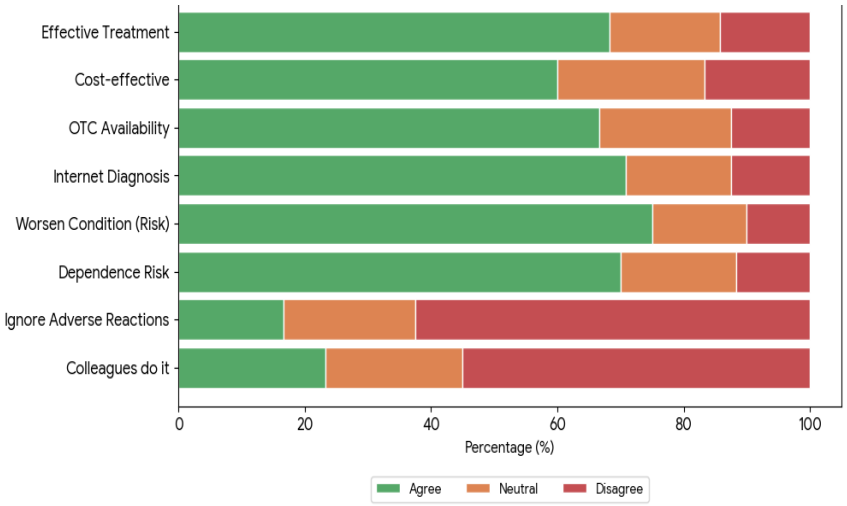

Figure 1 Barriers and Risk Perceptions

DISCUSSION

The prevalence of self-medication among healthcare professionals in this study (69.2%) underscores a widespread behavioral paradox where formal clinical knowledge coexists with self-directed pharmacological practices. Comparable rates have been reported among Spanish healthcare professionals (11) and in studies from multiple low- and middle-income contexts (12,13), suggesting that this phenomenon transcends regional and professional boundaries. The high frequency of self-treatment for minor ailments such as digestive and musculoskeletal pain mirrors findings from hospital-based studies in Uganda and Saudi Arabia (12,14). These consistent global patterns point to convenience, accessibility, and occupational culture as recurrent determinants rather than isolated anomalies of local systems.

Economic and logistic motivators were the most commonly reported drivers, cost-effectiveness (60.0%) and easy over-the-counter access (66.7%), which align with previous evidence that health workers' self-medication often stems from structural inefficiencies such as limited appointment availability and high consultation costs (15). Similarly, the widespread reliance on online information (70.8%) reflects a digital shift in health-seeking behavior that, while facilitating autonomy, increases the risk of misinformation and unsupervised polypharmacy (16). The present data reinforce that system-level barriers, rather than individual ignorance, are central to perpetuating unsafe self-care among medical personnel.

A notable gender disparity emerged: males were significantly more likely to self-medicate than females ($p=0.028$; OR 2.31, 95% CI 1.05-5.12). This aligns with reports from Saudi Arabia, where men demonstrated higher rates of psychotropic and analgesic self-use, potentially linked to differences in perceived self-efficacy, access, and willingness to self-diagnose (17). The predominance of nurses among respondents (90%) and their high engagement in self-treatment further corroborate evidence that frontline cadres with intensive workloads are especially vulnerable (18). These findings collectively affirm the gendered and occupational stratification of self-medication, where exposure, autonomy, and stress levels interact to shape practice patterns.

The persistence of self-medication despite widespread awareness of its risks epitomizes the "knowledge-attitude paradox" first articulated in behavioral health research (19). Although 75.0% of participants recognized the potential for worsening conditions and 70.0% acknowledged dependency risks, these perceptions did not translate into behavioral restraint. Studies among Ecuadorian university students and Libyan medical trainees describe similar cognitive dissonance, where pharmacological literacy engenders misplaced confidence in personal dosing and diagnostic accuracy (19,20). This disjunction implies that conventional educational strategies, focused solely on knowledge enhancement, are insufficient. Behavioral modification must instead target attitudes, stress regulation, and institutional accountability.

From a policy perspective, these findings necessitate a dual-pronged response. At the institutional level, hospital administrations should implement pharmacist-led audits, mandatory prescription monitoring, and continuing education sessions emphasizing professional self-regulation (14,18,21). Simultaneously, systemic reforms are required to address occupational stressors, ensure confidential access to staff healthcare, and mitigate the perceived need for self-reliant treatment. Pharmacovigilance systems could integrate internal reporting of self-medication patterns to identify early warning signals of misuse or dependency. Furthermore, embedding discussions of personal health behavior within nursing and medical curricula could preempt normalization of self-prescription during professional socialization.

The study's limitations include its single-center design, reliance on self-reporting, and potential response bias despite anonymity measures. Nevertheless, the sample's professional diversity and methodological rigor enhance its representativeness for comparable teaching hospitals in Southern Punjab. Future research should employ mixed-methods designs integrating qualitative inquiry into psychosocial determinants, expand to multicenter cohorts, and evaluate intervention effectiveness longitudinally. By contextualizing self-medication within occupational, cognitive, and systemic dimensions, this study contributes evidence critical to designing institution-specific prevention and regulation frameworks.

CONCLUSION

Self-medication is highly prevalent among healthcare professionals at Allama Iqbal Teaching Hospital, driven by accessibility, convenience, and occupational pressures despite broad awareness of its risks. The gender difference and the persistence of the knowledge-attitude paradox highlight the need for integrated interventions that couple pharmacological education with institutional support mechanisms. Policymakers and hospital administrators should prioritize pharmacist-led monitoring, confidential staff healthcare pathways, and stress-reduction strategies to promote rational medication practices and safeguard both provider and patient safety.

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