Journal of Multidisciplinary Healthcare

Dovepress
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ORIGINAL RESEARCH

Community Pharmacists' Knowledge and Attitude Towards Opioid Pain Medication Use in Bahir Dar City, North-West Ethiopia

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Background: Opioid use is a major global public health problem, affecting 16 million individuals worldwide. According to a 2023 WHO report, out of the 600,000 substance-related deaths worldwide, 80% were attributed to opioid use. Pharmacists play a vital role in reducing unnecessary opioid exposure while facilitating access to non-opioid alternatives. To do so, pharmacists should have sufficient knowledge regarding opioid-containing medications and a positive attitude about opioid use problems.

Objective: This study aimed to evaluate community pharmacists' knowledge of opioid-containing medications and their attitude toward opioid use problems.

Materials and methods: A cross-sectional study was conducted using a self-administered, structured questionnaire distributed to 105 community pharmacists from July 1–30, 2023 in Bahir Dar City, Ethiopia. The tool included demographic information and questions designed to assess participants' knowledge and attitudes.

Results: Out of the 105 pharmacists included in this study, majority were males (54.3%), nearly half held a bachelor's degree (49.5%), and slightly above one-third had over a decade experience (39%). Regarding knowledge and attitude towards opioids, 62 individuals (59%) exhibited good knowledge, and 64 (61%) demonstrated less stigma toward opioid usage. Factors affecting knowledge include: education level (AOR (95% CI): 8.43 (1.76–40.35) and 9.93 (1.04–85.33) for bachelors and postgraduates respectively and age 1.45 (1.20–1.77)]. Meanwhile, experience [AOR (95% CI): 4.64(1.20–17.90) and 4.29 (1.23–15.05)] for 5–9 years and ≥10 years respectively and education level [AOR (95% CI): 4.08 (1.40–11.93) for bachelors and 6.40 (1.42–28.96)] for postgraduates were linked to attitude.

Conclusion: A gap in knowledge and more stigmatizing behavior was observed among community pharmacists. These findings imply the importance of tailored educational interventions to address knowledge gaps and promote positive attitudes toward opioid usage among community pharmacists. Therefore, it is imperative to deliver up-to-date information on opioids, emphasizing their high addiction potential, to ensure pharmacists are well-equipped with the latest information.

Keywords: opioids, pain management, community pharmacists, knowledge, attitude, Ethiopia

Introduction

According to the Centers of Disease Control (CDC), the number of deaths due to drug overdose has been on the rise recently. In 2020 and 2021 for instance, approximately 107,000 drug overdose deaths were observed, of which, over 75% of it was attributable to opioids. [1] The opioid epidemic is a major global public health concern, affecting 3 million people in the USA alone and 16 million individuals worldwide.[2]

Received: 29 November 2023
Accepted: 21 February 2024
Published: 27 February 2024

The global opioid crisis majorly affects North America, parts of Africa, and the Middle East, and is extensively spreading worldwide in a threatening manner.[3] The 2023 WHO report stated that about 600,000 deaths are attributable to drug use. Approximately 80% of these deaths were related to opioid use. Although opioids have both analgesic and sedative effects, they are commonly used for pain management. Besides, this class of medication has also been used for non-medical purposes as it causes euphoria after intake, which is the main reason why they have been abused.[4]

Opioids are the most frequently prescribed medications for the effective treatment of moderate-to-severe pain, despite the risks associated with its chronic usage. The use of opioids has skyrocketed over the last few years, reaching 235 million prescriptions in 2004 alone, mainly because of the commencement of treating the "fifth vital sign", pain.[5–8] In a Netherlands study, the overall prescription opioids approximately doubled from 4109 to 7489 per 100, 000 inhabitants between the years 2008 and 2017.[9] Opioid use problem is also on the rise in Africa as this is a global phenomenon. Its consumption for non-clinical indications has increased in this region as 87% of the World's illicit opioids are in Africa, expanding the opioid market in sub-Sahara Africa.[10]

As pharmacists are the last healthcare providers encountered and the main link in the drug distribution chain for patients before an opioid is dispensed, they could play a vital role in reducing unnecessary opioid exposure, while facilitating access to non-opioid alternatives. Therefore, to dispense opioid analgesics, pharmacists must comply with the requirements of controlled substance laws and determine whether dispensing a prescription order serves a legitimate medical purpose and is in the usual course of professional practice. However, if they lack knowledge about pain management and controlled substance use policies, it can have a catastrophic impact.[11,12] To our best knowledge, studies that assess the knowledge and attitudes of community pharmacists regarding opioid pain medications are scarce. Therefore, this study aimed to evaluate the knowledge and attitude of community pharmacists working in Bahir Dar City regarding opioid-containing medications.

Methods

Study Design, Setting, and Period

This quantitative cross-sectional study was conducted on community pharmacists of Bahir Dar Town from July 1–30, 2023. The study population consisted of all community pharmacists working in Bahir Dar, Ethiopia.

Inclusion and Exclusion Criteria

Inclusion Criteria

Pharmacists working at community pharmacies in Bahir Dar City who have at least a diploma in pharmacy

Exclusion Criteria

All other pharmacists working in the pharmaceutical industry, academia, and hospital pharmacies

Sample Size and Data Collection Instruments

Data were collected from 105 community pharmacists using a self-administered structured questionnaire that included demographic information (age, sex, religion, education level, experience, and employment status) and questions that were designed to assess participants' knowledge and attitudes. On average, study participants took 30 minutes to complete the questionnaire, and it was filled immediately without any days of delay. The tool which was used to assess knowledge was developed by reviewing related literatures.[13,14] whereas the questionnaire used to assess "Attitude" was directly adopted from (OM-PATOS).[14] The tool had 16 ("yes" or "No") type knowledge assessment items and 19 Likert scale questions to assess pharmacists' level of agreement with; 1= Strongly Disagree, 2= Disagree, 3= Neither agree nor disagree, 4=Agree and 5=Strongly Agree. The total attitude scores for the 19 items could be in the range between 19 to 95.

Data Quality Control

Before the commencement of the data collection process, the quality of the data collection tool was ensured using a questionnaire pretesting strategy. In addition, data collectors and supervisors were trained on the data collection technique one day prior to the data collection process.

After the questionnaire was developed, its clarity, validity, and reliability were evaluated using a pre-test involving a sample of 15 pharmacists working in community pharmacies in Gondar Town, Ethiopia. The sampled pharmacists then provided feedback on the design and relevance of the questionnaires. In addition, all the questions were refined to achieve content validity by a panel of three senior pharmacists (two PhD pharmacologists and one assistant Professor in Pharmaceutics)

Subsequently, the internal consistency (reliability) of the items was tested using Cronbach's alpha. The reliability score of the survey tool determined by Cronbach's alpha was 0.759 for knowledge. If an item was deleted, the alpha value would be in the range of 0.71 and 0.81. The coefficient alpha was 0.803 for the attitude scale with alpha values ranging from 0.77 to 0.83 if an item was deleted. Following this rigorous check, a finalized questionnaire was used to collect data from the study population.

Data Analysis and Interpretation

All collected data were checked for completeness, accuracy, and consistency by the principal investigator and co-authors. Then data were coded, entered, and analyzed using Statistical Package for Social Sciences (SPSS) version 26 software. Descriptive statistics were used to present patient characteristics, and the results are presented in tables and figures. To determine the association between the independent and dependent variables (knowledge and attitude), a binary logistic regression test was conducted. The model fitness was assessed using the Hosmer-Lemeshow goodness-of-fit test, and the p-values obtained from this test were considered to evaluate the model's adequacy for both knowledge and attitude. For knowledge, the obtained p-value was 0.436, and for attitude, it was 0.58 showing better alignment with the observed data. Using a univariate binary logistic regression analysis, we scrutinized each covariate individually. This process aimed to identify potential variables that could serve as candidates for inclusion in the subsequent multivariable regression analysis concerning pharmacists' knowledge and attitudes toward opioids. Variables with a $P<0.2$ were considered for multivariate binary logistic regression. Following this, multiple logistic regression models were employed to identify factors associated with each outcome variable, while accounting for confounding factors. A significance threshold of 0.05 for the p-value and a 95% confidence interval (CI) were utilized to determine the statistical significance of associations.

Study Variables

- Socio-demographic characteristics (age, sex, religion, education level, experience, and employment status)
- Participants' Knowledge and Attitude

Operational Definitions

Knowledge Section

There were 16 items in the knowledge section and the participant gets 1 point for each correct answer. Consequently, the total knowledge score can be ranged from 0 to 16. Then the values were summed up and their mean score was calculated and found to be 12.0286. Based on this, participants with total knowledge scores lower than this mean value were considered to have poor knowledge.

Attitude Section

The participant's attitude was evaluated with 19 items, five-point Likert scale questions. The total attitude score for 19 items could be in the range between 19 to 95. Likewise, each participant's responses were summed up and their mean values were determined. Participants who scored lower than or equal to the mean score (54.03) on the attitude questions were labeled as having a favorable attitude, whereas those who scored higher than the mean score were considered to have an unfavorable attitude toward opioid use.

Ethical Consideration

Before commencing the study, the aim of the study was explained to the participants, and the confidentiality of their information was assured. Ethical clearance was obtained from the Ethical Review Board of Bahir Dar University, and informed consent was obtained from all the participants. Respondents were free to accept or refuse participation at any

time during data collection. The anonymity of the study participants was assured, and any information provided was kept confidential and informed that only aggregate data were reported.

Result

A total of 110 questionnaires were distributed to the community pharmacists. Of this, 105 of them were completed which makes a response rate of 95.45%. A little more than half (54.3%) of the respondents were males. Age-wise, they were found in the range between 22 and 60 years of age, with a mean age of 34.6 ± 9. Most study participants were Christians (68.6%), and slightly above one-third had more than 10 years of experience. Nearly four-fifths of the study participants worked in retail pharmacies and the predominant proportion were full-time workers (86.7% of the total sample). The socio-demographic characteristics of the participants are presented in Table 1.

Knowledge and Attitude Level of Community Pharmacists Working in Bahir Dar City Regarding Opioids

Among the 105 pharmacists who participated in this study, 62 (59%, 95% CI: 49–68.5%) were found to have good opioid knowledge and the remaining 41% had erroneous thoughts about it. On the other hand, when it comes to attitude, 64 (61%, 95% CI: 50.9–70.3%) demonstrated a less stigmatizing behavior toward opioid usage (Figure 1).

Factors Associated with Participants' Opioid Use Knowledge

Univariate analysis of binomial logistic regression identified age, label of education, and experience as predictors of pharmacists' opioid knowledge. However, upon multivariate logistic regression, experience was removed, and age, along

Table 1 Socio Demographic Characteristics of the Study Participants in Bahir Dar City (n=105)

Socio-demographic characteristics	Category	Frequency	Percentage (%)
Gender	Female	48	45.7
	Male	57	54.3
Age (in years)	Mean+ Std	34.6 ± 9	
Age range		22–60	
Religion	Muslim	33	31.4
	Orthodox	72	68.6
Experience	<1Year	27	25.7
	1–4Years	15	14.3
	5–9Years	22	21
	≥10Years	41	39
Level of Education	Diploma	30	28.6
	Bachelor of Pharmacy	52	49.5
	Masters	23	21.9
Working place	Drug store	19	18.1
	Pharmacy	86	81.9
Employment status	Part Time	14	13.3
	Full Time	91	86.7

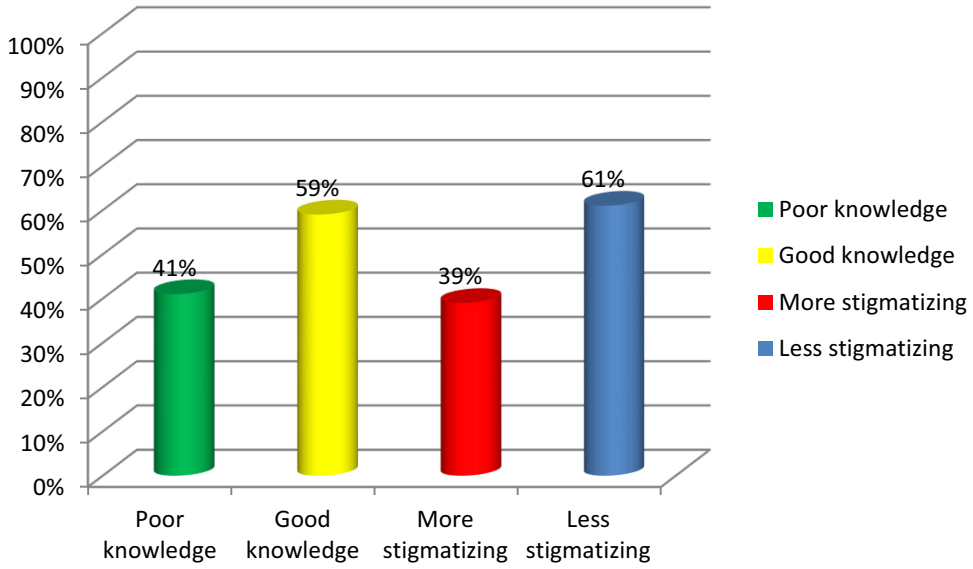

Figure 1 The level of knowledge and attitude on opioids among community pharmacists of Bahir Dar city.

with the label of education, displayed a statistically significant association. In this respect, Bachelor and postgraduate pharmacists showed higher odds for good knowledge than the corresponding diploma pharmacist with AOR 8.43 (CI: 1.76–40.35) and 9.93 (1.04–85.33) and a P value of 0.008 and 0.047 respectively (Table 2).

Table 2 Logistic Regression Analysis on Pharmacists' Opioid Knowledge

Variables		Knowledge		COR (95% CI)	AOR (95% CI)	P-value
		Good	Poor			
Gender	Female	24	24	0.50 (0.23–1.10)	0.45 (0.12–1.74)	0.248
	Male	38	19	1	1	
Age	**Continuous**			1.40 (1.22–1.59)	1.45 (1.20–1.77)	<0.001
Religion	Muslim	18	15	0.76 (0.33–1.76)	0.21 (0.03–1.40)	0.106
	Christian	44	28	1	1	
Experience	Less than 1 year	9	18	**1**	**1**	
	1–4 years	5	10	1.0 (0.262–3.82)	5.51(0.34–89.80)	0.231
	5–9 years	15	7	4.27 (1.29–14.26)	4.03(0.32–50.20)	0.279
	≥10 Years	33	8	8.25 (2.71–25.09)	2.34(0.18–30.75)	0.518
Educational Level	Diploma Pharmacy	8	22	1	1	
	Bachelor of Pharmacy	36	16	6.19 (2.27–16.83)	8.43(1.76–40.35)	0.008
	Post Graduate Pharmacy	18	5	9.90 (2.76–35.58)	9.93 (1.04–85.33)	0.047
Working place	Drug Store	13	6	**1**		0.081
	Pharmacy	49	37	0.61 (0.212–1.76)	0.18 (0.03–1.24)	
Employment status	Part time	9	5	1	1	0.773
	Full time	53	38	0.78 (0.24–2.50)	1.46 (0.11–19.46)	

Abbreviation: AOR = Adjusted odds ratio, COR, Crude odds ratio.

The multivariate analysis also identified that the age of the study participants had a statistically significant association with opioid knowledge [AOR (95% CI): 1.45 (1.20–1.77), P < 0.001]. For every increase in age by one year, there is 1.45 times greater odds of better opioid knowledge.

Factors Associated with Participants' Attitudes Toward Opioid Use

Attitude levels and demographic data were compared to examine the factors that influence attitudes toward opioid use. As shown in Table 3, the multivariable analysis showed that educational level and experience affected community pharmacists' attitudes. In this sense, bachelor's degree and above and experienced pharmacists have demonstrated better attitudes by being less stigmatizing than other compared groups. Participants that have 5–9 years and ≥10 years of work experience demonstrated a less stigmatizing attitude compared with the corresponding pharmacists that have less than 1-year experience [AOR (95% CI): 4.64(1.20–17.90) and 4.29 (1.23–15.05)] respectively.

Similarly, there was a statistically significant association between pharmacists' attitudes and educational levels. As shown in the table below, pharmacists who graduated with a bachelor's degree were four times more likely to be less stigmatizing than diploma pharmacists [AOR (95% CI): 4.08 (1.40–11.93), P = 0.010]. Meanwhile, postgraduates were found to be 6.40 times less stigmatizing [AOR (95% CI): 6.40 (1.42–28.96), P = 0.016] (Table 3)

Discussion

To our knowledge, this is the first study in Africa to evaluate the knowledge and attitudes of community pharmacists towards opioid pain medication. The investigation was undertaken due to the pivotal role of opioids in treating diverse pain, especially, in managing cancer pain, primarily due to their effectiveness. Yet, addressing their adverse effects and

Table 3 Factors Associated with Community Pharmacists' Attitude Towards Opioid Use

Variables		Attitude		COR	AOR	P-value
		More stigmatizing	Less stigmatizing			
Gender	Female	22	26	0.59 (0.27–1.30)	0.69 (0.27–1.73)	0. 425
	Male	19	38	1	1	
Age	**Continuous**			1.087 (1.03–1.15)	1.04 (0.97–1.11)	0.290
Religion	Muslim	13	20	0.98 (0.42–2.28)	0.88 (0.30–2.56)	0.807
	Christian	28	44	1	1	
Experience	Less than 1 year	17	10	**1**		
	1–4 years	8	7	1.49 (0.41–5.35)	3.30(0.71–15.47)	0.129
	5–9 years	6	16	4.53 (1.34–15.37)	4.64(1.20–17.90)	0.026
	≥10 Years	10	31	5.27 (1.83–15.17)	4.29(1.23–15.05)	0.023
Educational Level	Diploma Pharmacy	20	10	1	1	
	Bachelor of Pharmacy	16	36	4.50 (1.72–11.76)	4.08(1.40–11.93)	0.010
	Post Graduate Pharmacy	5	18	7.20 (2.067–25.08)	6.40(1.42–28.96)	0.016
Working place	Drug Store	6	13	**1**	**1**	0.709
	Pharmacy	35	51	0.67 (0.233–1.94)	0.79(0.23–2.70)	
Employment status	Part time	6	8	1		0.603
	Full time	35	56	1.20 (0.38–3.75)	1.45(0.36–5.84)	

the risk of dependence poses significant challenges.[15] Therefore, this study can shed light on opioid use knowledge and attitudes that should be addressed to enhance its appropriate use. Pharmacists play a number of roles in combating opioid crises, ranging from stewardship of opioids to promoting safe opioid practices among communities.[16,17] However, a gap in the knowledge of pharmacy professionals limits the satisfactory completion of drug dispensing as they are the main gateway to patient safety.[18,19] Therefore, investigating community pharmacists' knowledge working in Bahir Dar City regarding opioids and their attitude towards opioid use problems is crucial for implementing corrective policies and actions to secure safe dispensing and usage of opioids.

Based on the findings of this study, 59% of the participating pharmacists had good opioid knowledge. This number is considerably smaller than the percentage reported by Borgsteede et al which found 71%.[20] As the final healthcare professionals that encounter patients before using prescription medications, developing the capacity of the professionals to provide interventions to opioid use disorder must grow.[21] Gaps in knowledge among community pharmacists regarding opioid pain medication indicate that greater effort is needed to provide pharmacists with up-to-date information about opioids and their high addiction potential, as their judicial dispensing can reduce the opioid crisis. This was attested by a Saudi Arabian study where 85.15% of respondents responded affirmatively to the question: "Do you believe that there is a need to enhance pharmacists" awareness regarding the dispensing of opioid medications?.[18] Not only, pharmacists, but also physicians and nurses possess insufficient knowledge of pain and pain medication which urgently requires the need for more training and education on this burning issue.[22]

This study revealed that more than three-fifths (61%) of the community pharmacists working in Bahir Dar City had less stigmatizing behavior toward opioid use problems. This implies that a significant number of pharmacists (around two-fifths) had stigmatizing behavior for opioid use and opioid use problems. This relatively higher level of stigma among pharmacists towards opioid users is an alarm to take action and investigate the factors contributing to stigma, and efforts to lessen it are needed.[23] This result is in contrast to a study conducted in Utah and Texas, which assessed the attitude of pharmacists in helping those with prescription opioid problems and found approximately 90% endorsement in helping patients who misuse opioids.[24] Another cohort survey conducted at the University of Tennessee on pharmacy students did not seem to reveal stigmatizing attitudes towards the opioid-seeking behaviors of patients or classmates.[25] This difference might be attributable to setting differences between the two studies and the current study. On the contrary, a study done by Werremeyer et al demonstrated pharmacists' higher preference for social distancing (negative attitude) towards patients with opioid misuse behaviors.[23] This is further supported by a study conducted in New Orleans on reducing stigma towards substance users, which found a 50% stigmatizing attitude.[26]

The multivariable regression analysis of this study revealed that level of education demonstrated a statistically significant association with opioid use knowledge. Accordingly, Bachelor's and postgraduate pharmacists were more likely to have good knowledge of opioids than diploma pharmacists. One study assessed pharmacists' overall knowledge of substance use and found a lack of sufficient knowledge in providing services. Moreover, most of them expressed a need for more education.[27] From this, we can infer that continuing professional development from a diploma to a BPharm and MSc had higher odds for better knowledge. Therefore, efforts that focus on improving the knowledge of pharmacists are crucial for optimal treatment outcomes, especially for addictive medications such as opioids.[28]

Age was another variable associated with opioid knowledge. Older pharmacists were more knowledgeable than younger ones, with an odds ratio of 1.45, which implies that for every one-year increase in age, there were 1.45 times higher odds for better opioid knowledge. This could be because older pharmacists, as they might have more experience, could also have had sufficient exposure to more complicated cases.

Regarding attitudes towards opioid use problems, the level of education was found to affect pharmacists' moral judgment. The multivariable logistic regression analysis showed that higher levels of education (degree and postgraduates) showed less stigmatizing behavior than diploma pharmacists. Likewise, in a study conducted by Palmar in 2013 that evaluated stigma towards drug users, the level of education contributed significantly to reducing the stigma associated with the use of psychoactive substances.[29] Healthcare professionals and their patients believe that pharmacies are the most favorable places to teach patients about the risks and benefits of their opioid medications. Therefore, continuous education and training programs to prepare pharmacists for better delivery of opioid risks and safety counseling are paramount.[30]

Similarly, experienced pharmacists demonstrated better attitudes by being less stigmatizing than inexperienced pharmacists. Participants who have 5–9 years and ≥10 years of work experience displayed less stigmatizing attitudes compared to the corresponding pharmacists who had less than one year of experience. One study found that older pharmacists were more willing and more positive about dispensing and counseling for substances and substance use disorders. They demonstrated that attitudes improved over time, with more experience.[31] Similarly, a study conducted in Saudi Arabia also revealed the positive role of experience on the overall knowledge and attitude towards pain management.[22] This difference might be due to the higher exposure time in the pharmacy setting, which enhances patient handling, as it is part of the patient care process.

The findings of this study are crucial for the pharmacy profession as the presence of stigma and negative attitudes toward patients with opioid misuse is associated with the delivery of poorer quality care to them. If stigma is present among pharmacists towards this segment of the population, it will result in a lower degree of care-seeking behavior by patients, thus unknowingly pushing away their patients toward more dangerous sources of opioids and other substances, and reducing access to legitimate medical use of opioids.[23]

Conclusion and Recommendation

As there were fewer studies assessing the knowledge and attitude of community pharmacists (CP), the findings from the current study could provide a new perspective that could add significantly to existing global knowledge within the scientific community. In addition, it has the potential to enhance effective dispensing of opioid-containing medications and handling of patients with opioid use problems. A high proportion of pharmacists in our study did not have sufficient opioid knowledge and were more stigmatizing about opioid use. Moreover, a significant association was observed between the outcome variables and socio-demographic characteristics, leading us to reject the null hypothesis and accept the alternative hypothesis. Therefore, to fill the knowledge gap observed among community pharmacists and their negative attitudes toward opioid use, there must be continuous awareness creation programs such as in-service training. In addition, strengthening the health regulation system and providing up-to-date information to pharmacists about the high addiction potential of opioids is something that cannot be kept for tomorrow.

Disclosure

The authors report no conflicts of interest in this work.

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