

The extent of Libyan pharmacist's knowledge of narcotic drugs A cross-sectional investigation into the skills and procedures of hospital and community pharmacists in Benghazi Libya

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Abstract— Background: The misuse and diversion of narcotic drugs have become global public health concerns. Pharmacists, as key healthcare professionals, play a critical role in ensuring the safe and legal dispensing of controlled substances. In Libya, limited data exists on pharmacists' knowledge and practices related to narcotic drug management.

Objective: This study aims to assess the knowledge, attitudes, and practices of Libyan pharmacists regarding the dispensing of narcotic drugs, with a focus on legal awareness, prescription handling, documentation, and strategies for preventing misuse. **Methodology** :A descriptive cross-sectional study was conducted in Benghazi, Libya, involving 300 licensed pharmacists from both hospital and community pharmacies. Data were collected through a structured questionnaire divided into two parts: socio-demographic data and assessment of pharmacists' knowledge and practices. Descriptive statistical analysis was performed using Microsoft Excel, and findings were presented through tables and charts.

Results: The study revealed considerable variation in pharmacists' knowledge and practice levels. While some participants demonstrated an acceptable understanding of narcotic drug regulations, others lacked awareness of key legal requirements and best practices in prescription validation and documentation. Knowledge gaps were more prevalent among less experienced pharmacists and those without recent training or continuing professional development. **Conclusion:** The findings highlight a pressing need for comprehensive training programs, national guidelines, and stronger regulatory frameworks to support pharmacists in their role. By addressing these deficiencies, the Libyan healthcare system can

strengthen its control over narcotic drug use, reduce the risk of abuse, and ensure safer pharmaceutical care.

Keywords: Libyan pharmacists, narcotic drugs, pharmaceutical knowledge ,narcotics policy pharmacy education.

1. INTRODUCTION

More than 25% of people worldwide suffer from chronic pain, which is one of the most incapacitating human experiences in terms of severe physical agony (Macchia and Oswald, 2021).

The main medications used to treat pain are opioid analgesics, sometimes referred to as narcotics. These medications absolutely need a prescription from a licensed healthcare provider. Some examples of opioid analgesics include morphine, oxycodone, fentanyl, codeine, and tramadol. The WHO primarily saves opioid analgesics for palliative care and moderate-to-severe pain (Amaechi and Human, 2021; Anekar, *et al.*, 2023).

Opioids create a strong pain-numbing effect, a sense of invincibility, and euphoria through their interactions with particular receptors in the brain and other places. However, their advantages are frequently outweighed by the risks of using them, including tolerance, opioid use disorder, and overdose deaths, particularly when opioids are used in

conjunction with alcohol or anxiety medications (Rauf, *et al.*, 2021; Alrashdi, *et al.*, 2021)

Given these inherent risks, the dispensing of opioids is governed by strict laws and requires careful recording of the patient's information, the prescriber's information, and the precise dosage in the narcotic register. Usually, a licensed pharmacist is responsible for this task (Gregory and Gregory, 2020; Jantarada, *et al.*, 2021).

The term "opioid crisis" or "opioid epidemic" describes the concerning rise in overdose deaths and opioid use disorders, which are mostly brought on by rising opioid use and abuse. The 2022 World Drug Report estimates that 61.3 million opioid users consumed opioids in 2020, a trend that increased when compared to the same figures in 2017 (UNODC, 2022). In the United States alone, there were almost 70,000 recorded opiate-related deaths in 2020. It is a worldwide trend, and the opioid pandemic is not limited to any one area. Fentanyl produced illegally is increasing in North America, Europe, and Australia (Gardner, *et al.*, 2022).

The difficulties caused by opioid abuse are also being faced by Asian nations. Since Asia accounts for the majority of the world's illicit opioid usage, the opioid epidemic continues to be a critical topic for global public health study due to its negative impacts on families, communities, and society as a whole, as well as the financial strain it places on healthcare systems (Zimmer, *et al.*, 2022).

With the exception of accounts on the use of traditional compounds like alcohol, cannabis, and khat, the history of psychoactive substance use in Africa is somewhat brief. The availability and use of psychoactive substances in Africa significantly increased with the advent of prescription medications. Despite this, the most abused substances in Africa continue to be alcohol, cannabis, and khat. Despite the legislative controls in place, heroin and cocaine trafficking has recently made narcotic narcotics readily accessible throughout Africa. Problems resulting from the use or misuse of psychoactive substances frequently bring their harmful effects to the public's attention, leading to the creation of drug control policies. There is currently little systematic evidence-based drug information available in Africa. Additionally, official control mechanisms that might not promote community involvement are the focus of drug policy.

Controlling substance use and misuse in Africa is hampered by a number of factors, including a lack of political will, limited finance, a shortage of qualified medical workers, inadequate testing facilities, and inadequate treatment facilities (Odejide and Status, 2006).

Laws and regulations governing the use of narcotics and psychotropic medications vary from nation to nation. Law

Number (7) for the year 1990 regarding Narcotics and Psychotropic Drugs mentions a set of regulations for regulating the use and distribution of these substances under Libyan law (The Libyan Ministry of Justice, 2015).

The "State of Libya" has a national law that regulates all facets of these medicines, including their manufacture, import, export, possession, and others. The prescription and dispensing of these medications in hospitals, pharmacies, and other healthcare institutions is regulated by certain sections of this law. Because they play a significant role in these processes, pharmacists should be sufficiently knowledgeable about these laws.

As is well known, the most approachable front-line staff in the healthcare delivery system are pharmacists. Regretfully, they also seem to be a significant source for consumers to get prescription medications outside of medical settings. (Murthy and Swaroop, 2016). Furthermore, as drug usage has become a bigger issue globally in recent years, (Elamouri, *et al.*, 2017).

As a result, pharmacists ought to be well-versed in the regulations governing the distribution of narcotic and psychotropic drugs. Additionally, they must to adopt a mindset that respects these guidelines and put them into effect in their day-to-day job. Therefore, the overall goal of this study was to examine Libyan pharmacists' knowledge, attitudes, and practices about the laws governing the dispensing of psychotropic and narcotic pharmaceuticals as well as to draw attention to the role that Libyan pharmacists play in the issue of drug abuse in Libya.

1.1. Problem Statement:

The need for pharmacists to be well-informed and constantly adhere to narcotic medication legislation is highlighted by the growing concern over opioid abuse and drug-related fatalities on a worldwide scale. Existing research, however, identifies gaps in pharmacists' practices and understanding of how to safely dispense these regulated medications. These flaws endanger not just patient safety but also the integrity of the healthcare system and public health. Studies on pharmacists' proficiency with narcotic medications are scarce in Libya.

Whether pharmacists are sufficiently knowledgeable about drug classifications, prescription validity, record-keeping, and drug diversion prevention techniques is still unknown. Without a thorough awareness of these elements, pharmacists can unwittingly aid in opiate abuse or overlook prescription fraud.

This study, therefore, seeks to address these gaps by evaluating the knowledge and practices of Libyan pharmacists

concerning narcotic drug dispensing. The findings aim to inform policymakers, educators, and healthcare institutions about areas requiring intervention, ultimately promoting safer dispensing practices and supporting public health efforts against opioid misuse.

1.2. Aim of the Study:

This study aims to evaluate Libyan pharmacists' knowledge of narcotic drugs and their dispensing practices. By identifying gaps in knowledge or practice, this research seeks to provide evidence-based recommendations to enhance pharmacists' education and training. Strengthening pharmacists' expertise will support responsible medication use, prevent drug diversion, and ensure compliance with national and international regulations.

2. Methodology

2.1. Study Design:

This analytical cross-sectional study was conducted to assess hospital and community pharmacist's practices and skills in Benghazi Libya. The study utilized structured questionnaire.

2.2. Population and data collection:

The study included a total of (300) participants in this study from both genders, as number of n (175) from female and n (125) from male aged between (23-over 60) years old. Data collection began on february2, 2025, through face-to-face interviews with pharmacists in hospital and community and community pharmacies in Benghazi, Libya. A structured questionnaire was used for data collect.

2.3. Statistical Analysis:

In this study, statistical analysis was performed by using performed using Microsoft excel. Descriptive statistics were applied and categorical variables were expressed as frequencies and percentages. All data was represented in graphical and tabular forms to facilitate interpretation. Charts and tables were utilized to illustrate the findings clearly and highlight key trends within the dataset.

2.4. Ethical Considerations:

The study was approved by the University of Qurina, Pharmacy Department. All procedures performed in studies involving pharmacist participants were in accordance with ethical standards.

3. Resultes

3.1 Descriptive Results:

This analytical cross-sectional study aimed to assess the practices and skills of hospital and community pharmacist's in dispensing narcotic drugs in Benghazi Libya.

First in results focused on sociodemographic factors. As shown below, the population of this study consisted of 300 pharmacists, with 41.7% being male and 58.3% female. Look table1 and figure1.

Table .1 Gender distribution of pharmacists.

Gender	Frequency	Percent	Valid
Female	175	58.30%	
Male	125	41.7%	
Total	300	100%	

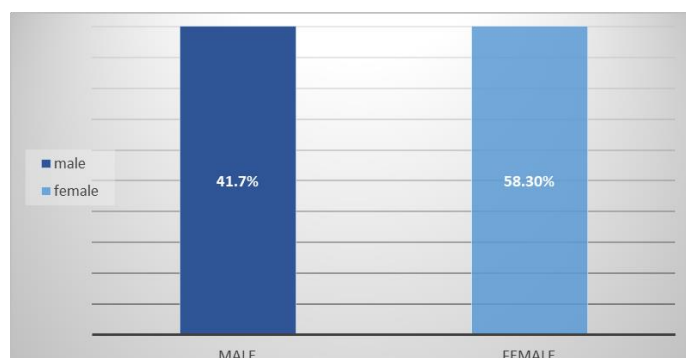


Figure .1 Gender distribution of pharmacists.

The population of this study consisted of pharmacists from different age groups: 46.3% were between 26 to 30 years old, 23.3% Between 31 to 35, 15% Between 23 to 25, 10.3% between 36 to 40, 2.3% between 41 to 45, 1.3% between 46 to 50, 1% between 51 to 55, and 0.3% between 56 to 60. Look table2 and figure2.

Age	Frequency	Percent	Valid
23-25	45	15%	
26-30	139	46.33%	
31-35	70	23.33%	
36-40	31	10.33%	
41-45	7	2.35%	
46-50	4	1.33%	
51-55	3	1%	
56-60	1	0.33%	
Total	300	100%	

Table2: Age group distribution of pharmacists.

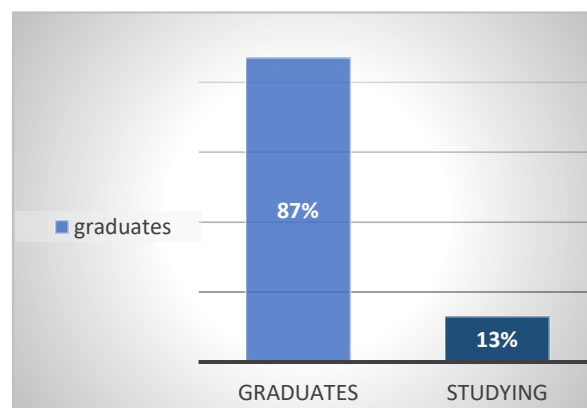


Figure .3 The population of pharmacists, both current study and graduates.

The study population was categorized based on the type of institution attended (public or private). Look table4 and figure4.

Table.4 Distribution of study population by type of institution.

Type of institution	Frequency	Percent	Valid
Public	182	60.67%	
Private	118	39.33%	
Total	300	100%	

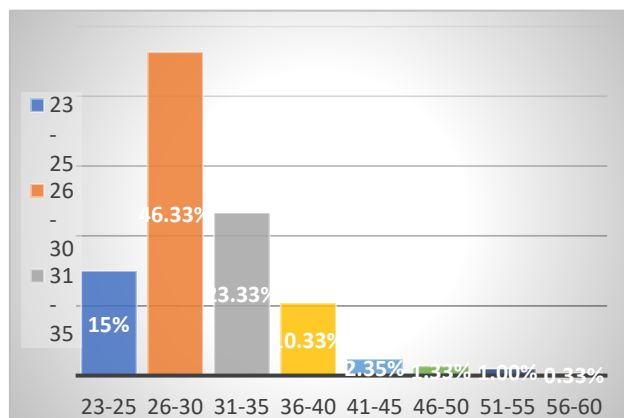


Figure2: Age group distribution of pharmacists.

The population of this study consists of pharmacists, some of whom were still studying, while others had already graduated. Look table3 and figure3.

Table.3The population of pharmacists, both current study.

Study status	Frequency	percent	Valid
Graduates	261	87%	
Studying	39	13%	
total	300	100%	

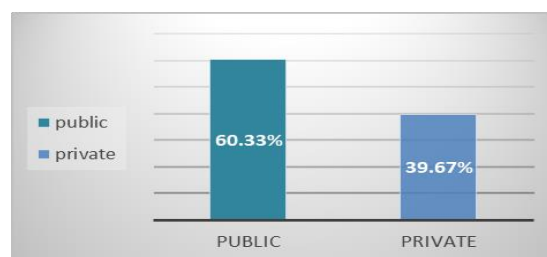


Figure.4 Distribution of study population by type of institution.

The study population was categorized according to the highest level of education attained by pharmacists, whether a Master's degree, a PharmD, or a B.Pharm. Look table5 and figure5.

Table5: Distribution of study population by high level of education.

Level education	Frequency	Percent	Valid
Masters	45	15%	
PharmD	34	11.33%	
B.Pharm	221	73.67%	
Total	300	100%	

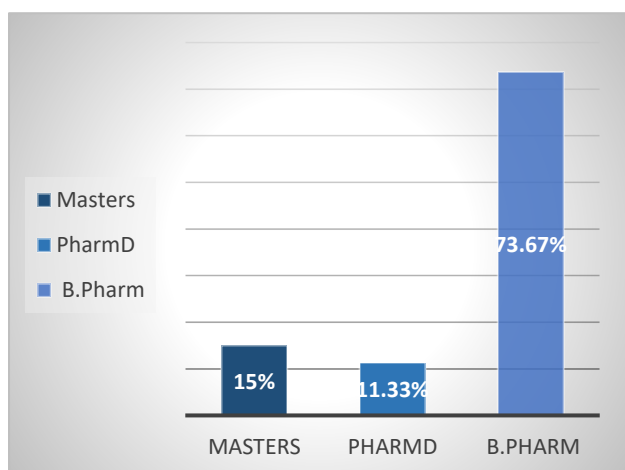


Figure.5 Distribution of study population by high level of education.

The study population was categorized based on whether they had completed any continuous professional development (CPD) courses within the past two years. Participant's responses were recorded as either (yes or no). Look table6 and figure6.

Table.6 Distribution of study population by CPD Course completion.

CPD Course completion	Frequency	Percent	Valid
Yes	157	52.33%	
No	143	47.67%	
Total	300	100%	

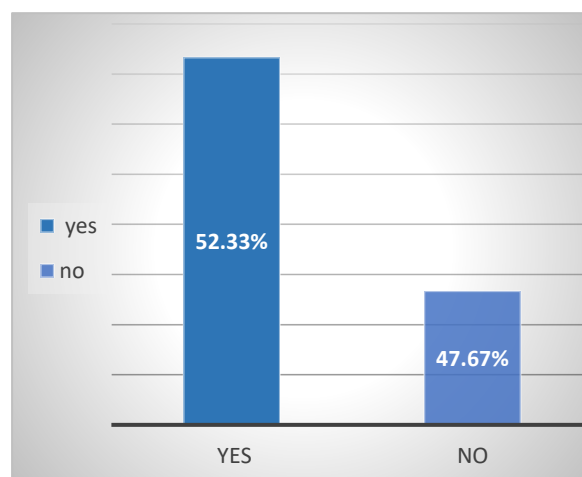


Figure.6 Distribution of study population by CPD Course completion.

The study population was categorized based on the employment status of Participants whether they were employed full-time or part-time. Look table7 and figure7.

Table.7 Distribution of study population by employment status.

Employment status	Frequency	Percent	Valid
Full-time	84	28%	
Part-time	216	72%	
total	300	100%	

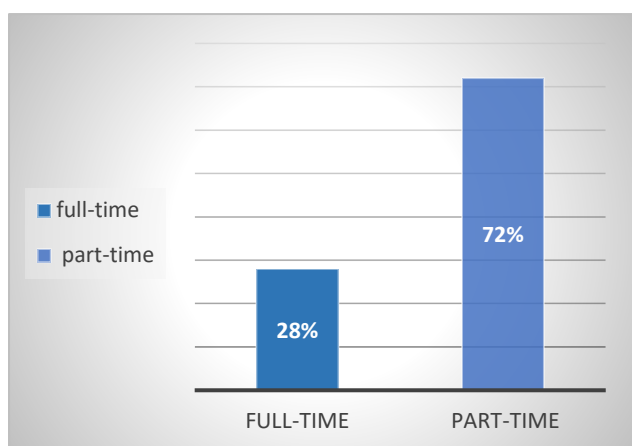


Figure.7 Distribution of study population by employment status.

The study population was categorized based on the type of pharmacy practice, distinguishing between community and hospital practice. Community pharmacies were further classified as either chain or independent, while hospital pharmacies were categorized as either public or private. Look table8, 9 and10, figure8, 9 and 10.

Note: some pharmacists are engaged both community and hospital pharmacy practice, indicating an overlap in professional roles and reflecting dual pharmacy practice.

Table8: Type of pharmacy practice.

Type of pharmacy practice	Frequency	Percent	Valid
Community	153	51%	
Hospital	147	49%	
Total	300	100%	

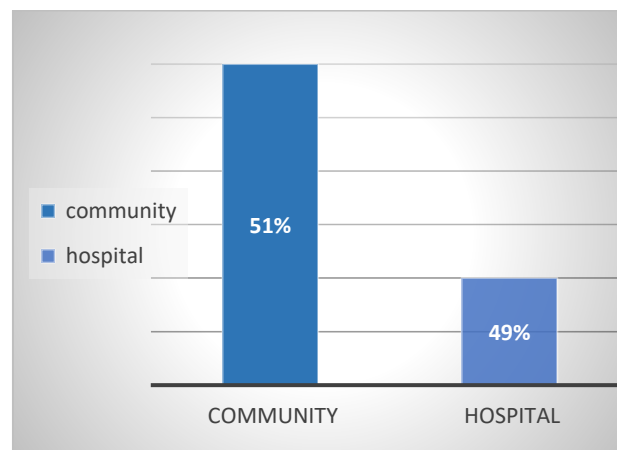


Figure8. Type of pharmacy practice.

Table9: Type of community practice.

Type of community practice	Frequency	Percent	Valid
Chain	13	4.33%	
Independent	75	25%	
practicing in community and hospital	98	32.67%	
practicing in hospital only	114	38%	
total	300	100%	

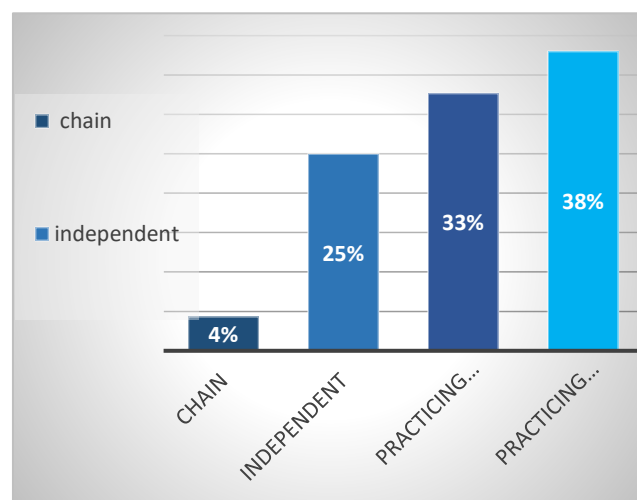


Figure9: Type of community practice.

Table.10 Type of hospital practice.

Type of hospital practice	Frequency	Percent
Hospital public	61	20.33%
Hospital private	53	17.67%
Practice in hospital & community	98	32.67%
Practice in community only	88	29.33%
Total	300	100%

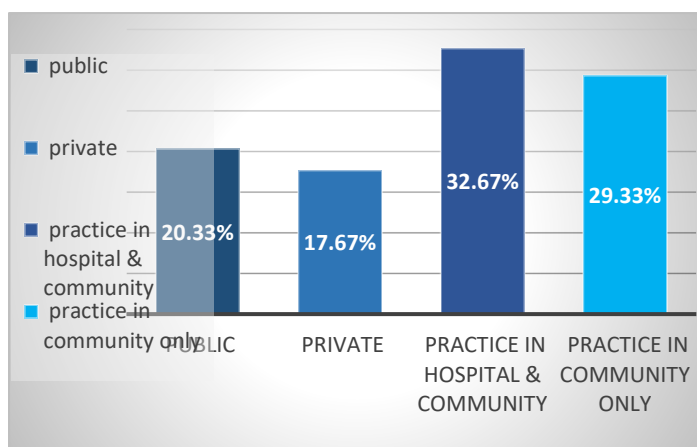


Figure10: Type of hospital practice.

The study population was categorized based on pharmacists' documentation practices related to opioid use. Specifically, participants were classified according to how frequently they recorded clinical notes in a journal or dispensing software (excluding the narcotic register) to monitor ongoing opioid use. Responses were categorized as Never, Rarely, Sometimes, Very often, or almost always. Look table11 and figure11.

Table.11 Presents the distribution of pharmacists based on the frequency of documenting opioid use in a journal or dispensing.

Response category	Frequency	Percent
Never	91	30.33%
Rarely	58	19.34%
Sometimes	96	32%

Very often	27	9%
Almost always	28	9.33%
Total	300	100%

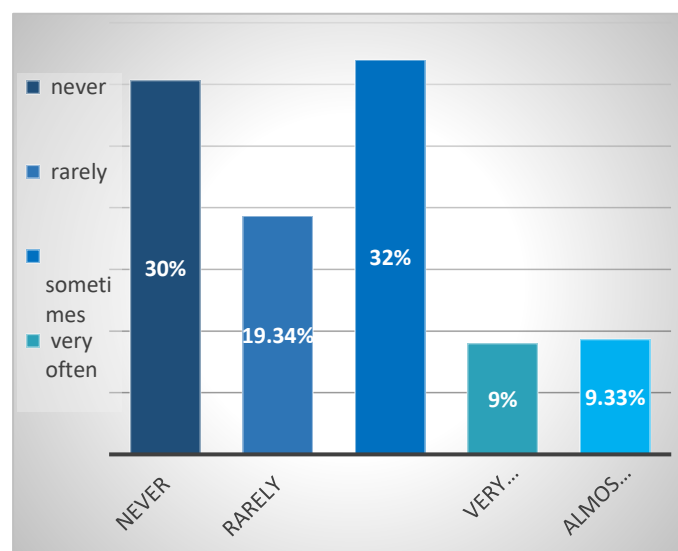


Figure11: Shows the distribution of pharmacists based on the frequency of documenting opioid use in a journal or dispensing.

The study population was categorized based on pharmacists' Counseling practices regarding the potential side effects of opioids. Specifically, participants were classified according to how frequently they provided Counseling on opioid-related side effects. Responses were categorized as Never, Rarely, Sometimes, Very often, or almost always. Look table12 and figure12.

Table.12 Presents the frequency distribution of pharmacists counseling patients on opioid side effect.

Response category	Frequency	Percent	Valid
Never	29	9.67%	
Rarely	40	13.33%	
Sometimes	96	32%	
Very often	51	17%	
Almost always	84	28%	
Total	300	100%	

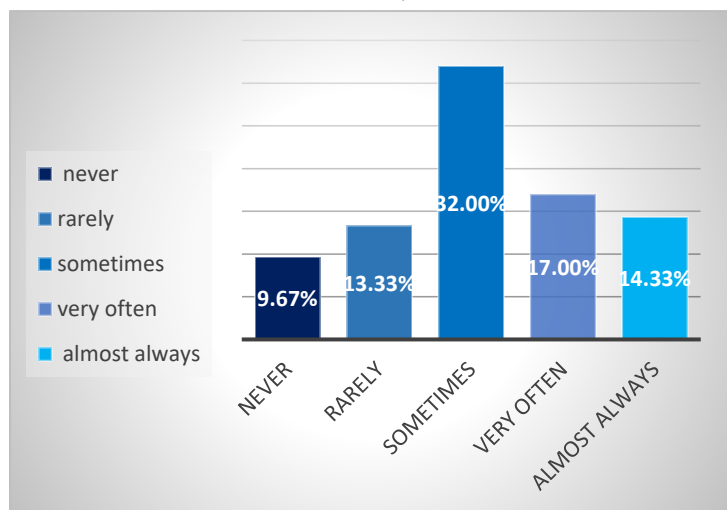


Figure.12 Shows the frequency distribution of pharmacists counseling patients on opioid side effect.

The study population was categorized based on pharmacists' counseling practices regarding opioid overdose risk. Specifically, participants were classified according to how frequently they counseled patients on the risk of opioid overdose. Responses were categorized as Never, Rarely, Sometimes, Very often, or almost always. Look table13 and figure13.

Table.13 Presents the frequency distribution of pharmacists counseling patients on opioid overdose risk.

Response category	Frequency	Percent	Valid
Never	68	22.67%	
Rarely	56	18.67%	
Sometimes	55	18.33%	
Very often	33	11%	
Almost always	88	29.33%	
Total	300	100%	

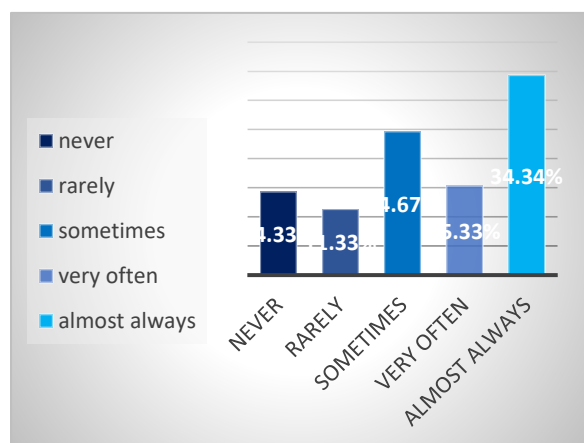


Figure.13 Presents the frequency distribution of pharmacists counseling patients on opioid

The study population was categorized based on pharmacists' refusal practices in opioid dispensing when abuse was suspected. Specifically, participants were classified according to how frequently they refused to supply opioids when there was doubt about potential misuse. Responses were categorized as Never, Rarely, Sometimes, Very often, or almost always. Look table14 and figure14.

Table.14Presents the distribution of pharmacists based on the frequency of opioid dispensing refusal in cases of suspected misuse.

Response category	Frequency	Percent	Valid
Never	43	14.33%	
Rarely	34	11.33%	
Sometimes	74	24.67%	
Very often	46	15.33%	
Almost always	103	34.34%	
Total	300	100%	

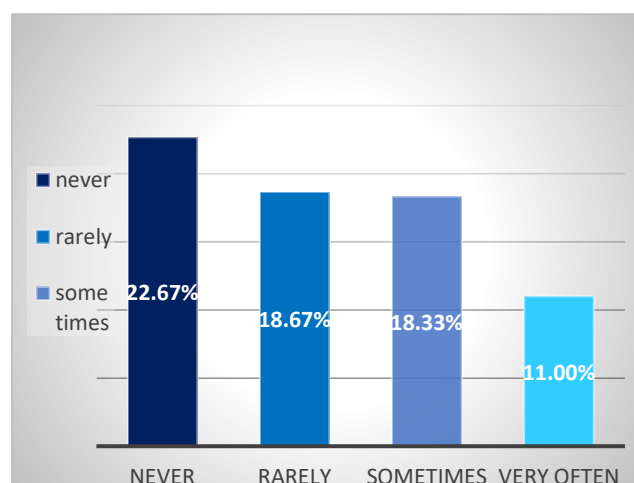


Figure14: Shows the distribution of pharmacists based on the frequency of opioid dispensing refusal in cases of suspected misuse.

The study population was categorized based on pharmacists' reporting practices regarding opioid abuse. Specifically, participants were classified according to how frequently they notified police or regulatory bodies about opioid abuse. Responses were categorized as Never, Rarely, Sometimes, Very often, or almost always. Look table15 and figure15.

Table.15 Presents the distribution of pharmacists by the frequency of reporting opioid abuse to police or regulatory bodies.

Response category	Frequency	Percent	Valid
Never	79	26.33%	
Rarely	58	19.33%	
Sometimes	78	26%	
Very often	41	13.67%	
Almost always	44	14.67%	
Total	300	100%	

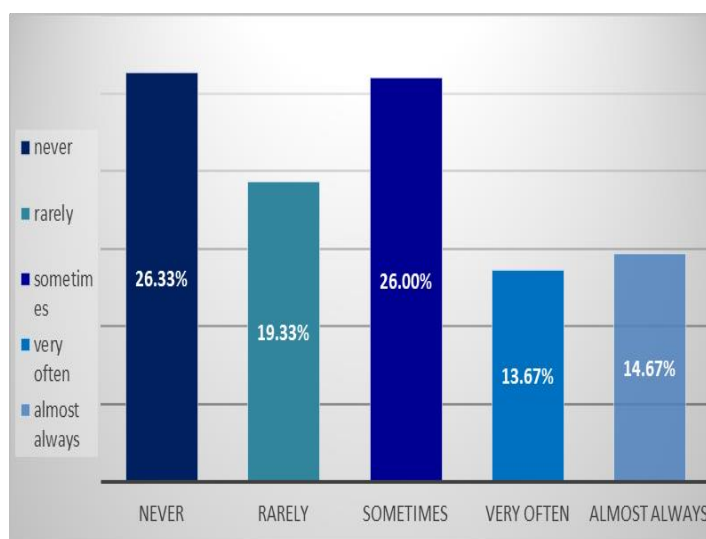


Figure.15 Shows the distribution of pharmacists by the frequency of reporting opioid abuse to police or regulatory bodies

The study population was categorized based on pharmacists' communication practices regarding opioid prescriptions. Specifically, participants were classified according to how frequently they called the physician to clarify an opioid prescription. Responses were categorized as Never, Rarely, Sometimes, Very often, or almost always. Look table16 and figure16.

Table.16 Presents the distribution of pharmacists by the frequency of calling physicians to clarify opioid prescription.

Response category	Frequency	Percent	Valid
Never	52	17.33%	
Rarely	54	18%	
Sometimes	85	28.33%	
Very often	37	12.34%	
Almost always	72	24%	
Total	300	100%	

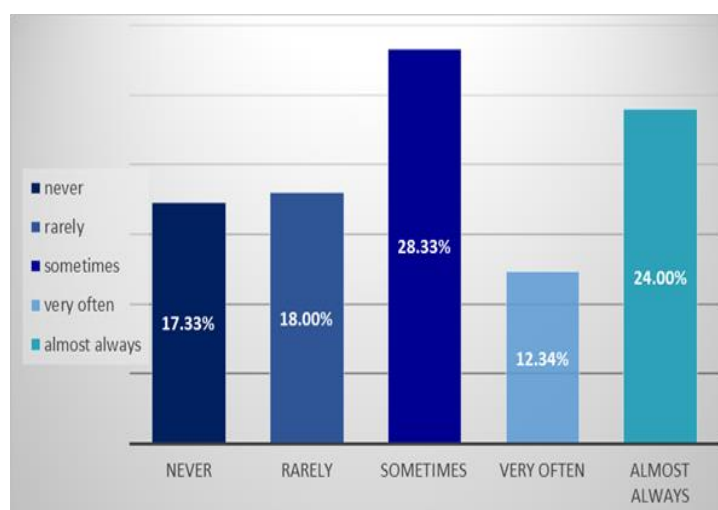


Figure.16 Shows the distribution of pharmacists by the frequency of calling physicians to clarify opioid prescription.

4. Discussion

This study aimed to assess the knowledge and practices of Libyan pharmacists regarding the dispensing of narcotic drugs, identifying gaps and proposing improvements to enhance compliance with regulations.

4.1. Pharmacists' Knowledge of Narcotic Drugs:

The results demonstrate varying levels of knowledge among pharmacists. While some showed a strong understanding of legal classifications and regulatory protocols, others lacked awareness of essential legal requirements. This aligns with Smith *et al.* (2020), who found that inadequate training and a

lack of continuous education negatively impact pharmacists' competency in handling narcotic drugs. (Smith, *et al.*2020).

4.2. Pharmacists' Practices in Dispensing Narcotic Drugs:

The study identified inconsistencies in pharmacists' practices concerning narcotic drug dispensing. While some adhered strictly to regulations, others faced obstacles such as weak monitoring systems and difficulties verifying prescriptions. These challenges align with findings from Jones and Brown (2018), who highlighted the necessity of stringent regulatory frameworks to ensure safe and appropriate dispensing. (Jones and Brown, 2018).

4.3. Factors Influencing the Dispensing of Narcotic Drugs:

Various factors were identified as influencing pharmacists' adherence to proper dispensing protocols, including insufficient training, unclear regulations, and workplace pressure. Similar findings were reported by Ahmed *et al.* (2019), who emphasized that inadequate professional training significantly contributes to improper dispensing practices. (Ahmed, *et al.*,2019).

4.4. The Need for Enhanced Education and Training:

The study highlights the urgent need to implement continuous education and specialized training programs for pharmacists dealing with narcotic drugs. Williams and Taylor (2021) also stressed that structured training initiatives improve compliance with regulations and minimize the risk of drug misuse. (Williams and Taylor, 2021).

5.Conclusion and Future Scope:

This study revealed critical insights into the knowledge and practices of Libyan pharmacists in dispensing narcotic drugs. Although a portion of pharmacists showed a sound understanding of legal and professional standards, notable deficiencies remain. Many pharmacists lacked comprehensive knowledge of national regulations, proper documentation protocols, and the ethical responsibilities tied to dispensing controlled substances. These gaps may contribute to the potential for misuse and diversion of narcotics, representing a significant public health risk.

Future research should expand the geographic and demographic coverage to include rural pharmacists and pharmacy technicians. In addition, longitudinal studies could help monitor changes in knowledge and practice over time, especially following policy changes or the implementation of training programs. It is also recommended that the Libyan health authorities invest in continuous professional development programs focusing on narcotic drug handling, along with stricter monitoring mechanisms to ensure compliance with national and international regulations.

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