

## Evaluation of Regulatory Compliance in Narcotic and Controlled Drug Dispensing: A Simulated Client Study in Community and Hospital Pharmacies

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### Abstract

Narcotic and controlled medicines comprise a group of pharmaceutical substances with considerable potential for misuse, dependence, and addiction. Because of their abuse potential, these medicines are subject to strict regulatory control. In Pakistan, narcotic and other drugs with significant potential for abuse are regulated under the relevant schedules of the Pakistan Drug Rules, 2017. Despite the availability of regulatory provisions governing their sale and dispensing, concerns remain regarding the quality of pharmacy services and the competency of personnel involved in medicine dispensing. Factors such as the absence of qualified pharmacists, inadequate prescription verification, and inappropriate handling of controlled medicines may contribute to their misuse. Effective enforcement of existing regulations is therefore essential to minimize inappropriate access to and use of

these medicines.

The study was designed to assess the dispensing practices related to narcotic and controlled medicines in community and hospital pharmacies using a simulated client methodology. Specifically, it aimed to determine how frequently these medicines were supplied to clients and to evaluate dispensing practices against applicable regulatory requirements and recommended standards.

A descriptive cross-sectional study was carried out between April 2023 and March 2024 in 130 community/retail and hospital pharmacies. A simulated client approach was employed to observe actual dispensing practices in routine pharmacy settings. A structured questionnaire was also used to document relevant information while maintaining confidentiality of the participating pharmacy personnel. The collected data were entered and analyzed using the Statistical Package for the Social Sciences (SPSS), version 20.

Of the 130 pharmacies assessed, 103 (79.2%) were community/retail pharmacies, while 27 (20.8%) were hospital pharmacies. Among the personnel encountered during the assessment, 51 (39.2%) were dispensers, 20 (15.4%) were pharmacists, 53 (40.8%) were pharmacy technicians, and 6 (4.6%) were salespersons. Overall, 115 (88.5%) pharmacies refused to supply the requested medicines to the simulated clients, whereas 15 (11.5%) supplied at least one of the requested medicines. The medicines supplied were alprazolam in 10 cases (7.69%) and bromazepam in 5 cases (3.8%). These medicines were generally supplied only after repeated insistence by the simulated client, and the quantities dispensed were limited to one or two tablets of alprazolam or bromazepam. Prescription-related inquiries were made by 117 (90.0%) respondents, whereas 13 (10.0%) neither asked for a prescription nor sought information regarding the purpose of medication use.

The findings indicate that although the majority of pharmacies demonstrated a cautious approach toward supplying narcotic and controlled medicines, instances of dispensing without appropriate prescription verification were still observed. The simulated client assessment further revealed considerable variation in dispensing practices among pharmacists, pharmacy technicians, dispensers, and salespersons. The limited availability of pharmacists in many pharmacies represents an additional concern for ensuring appropriate oversight of controlled medicines. Strengthening regulatory monitoring, improving the professional knowledge of pharmacy personnel, ensuring the presence of qualified pharmacists, and reinforcing prescription-verification procedures are recommended to promote responsible dispensing and reduce the potential for misuse and abuse of narcotic and controlled medicines.

## **1 INTRODUCTION**

Drug misuse represents a major public health concern because inappropriate exposure to psychoactive medicines can result in adverse health outcomes, dependence, substance use disorders, and addiction. Opioids, amphetamine-type stimulants, benzodiazepines, and other psychoactive substances may produce significant pharmacological effects and, when used inappropriately, can increase the likelihood of dependence and addictive behavior. The misuse of medicines that are costly or in limited supply may also place an additional financial burden on healthcare systems and insurance providers. Drug abuse generally refers to the use of a substance in a manner, quantity, or frequency that may produce physical or psychological harm or lead to dependence. Because of these risks, medicines with substantial abuse potential are subject to specific regulatory controls in many countries, and their dispensing requires appropriate supervision and monitoring [1]. Narcotic medicines have a long history of therapeutic and non-therapeutic use. During the nineteenth century, opioid-containing preparations became increasingly incorporated into Western medical practice. Long before their modern pharmaceutical applications, substances with narcotic properties had been used for their perceived analgesic, calming, intoxicating, and curative effects.

However, increasing recognition of their potential for dependence and harmful use resulted in growing concerns regarding unrestricted availability [2]. Consequently, regulatory systems were progressively introduced in several countries to restrict access to medicines with a high potential for abuse and to ensure that their legitimate use was primarily based on appropriate medical authorization and prescription [3]. Narcotic and controlled medicines encompass substances that require particular regulatory oversight because of their potential to cause misuse, dependence, and substance use disorders. In the United States, the Drug Enforcement Administration (DEA) commonly uses the term “narcotic” primarily in relation to opioid analgesics. Controlled substances, more broadly, include medicines and other substances for which the potential for abuse, dependence, or diversion warrants legal restrictions and controlled access [4]. Appropriate regulation of these medicines is therefore essential to balance their legitimate therapeutic value with the risks associated with inappropriate use.

In Pakistan, medicines with considerable potential for abuse are subject to regulatory control under the applicable drug legislation, including the relevant provisions of the Punjab Drug Rules, 2017. However, concerns have been raised regarding the quality of pharmacy services and the level of professional knowledge among personnel involved in medicine dispensing. Limited availability of qualified pharmacists, inadequate prescription assessment, inappropriate medicine handling, and insufficient verification of prescriptions may facilitate inappropriate access to controlled medicines. Furthermore, differences in dispensing practices between prescription and non-prescription medicines and the supply of medicines without appropriate prescriptions can undermine the effectiveness of existing regulatory measures. Although legislation governing the sale and distribution of medicines is available, effective implementation, monitoring, and accountability remain essential for ensuring compliance [5]. The clinical and behavioral consequences associated with narcotic and controlled medicines include addiction, physical dependence, and tolerance. Although these concepts are related, they describe different phenomena. Addiction involves persistent drug-seeking or drug use despite the occurrence of harmful consequences. Pseudo-addiction, in contrast, may involve drug-seeking behavior associated with inadequately controlled pain and may resolve when effective pain management is achieved. Physical dependence represents physiological adaptation to a medicine, whereby abrupt discontinuation can result in withdrawal manifestations. Tolerance occurs when the response to a particular dose decreases over time, potentially leading to the need for higher doses to achieve a comparable therapeutic effect [6]. The potential for misuse is not limited exclusively to narcotic analgesics. Certain psychotropic medicines may also be used inappropriately because of their sedative, tranquilizing, or other psychoactive properties. Antipsychotic medicines, for example, may produce adverse effects such as tremor, sedation, dizziness, weight gain, sexual dysfunction, and tardive dyskinesia. Although these medicines are generally not regarded as addictive substances, inappropriate use and misuse have been reported, particularly because of their sedative and tranquilizing effects. Improper administration may result in serious adverse outcomes, including withdrawal-related complications and potentially life-threatening cardiac effects [7-9]. Similarly, substances such as alcohol, heroin, barbiturates, benzodiazepines, anesthetic agents, solvents, and gamma-hydroxybutyrate can cause substantial central nervous system depression. As intoxication progresses, affected individuals may develop impaired coordination, slurred speech, unstable gait, and reduced awareness. Severe toxicity may result in respiratory depression, cardiovascular compromise, and death, while repeated exposure may produce both addiction and physical dependence [10].

Inappropriate dispensing of narcotic and controlled medicines is an important component of the broader problem of medicine misuse. Weaknesses in prescription verification, inadequate counseling, insufficient assessment of patient requirements, and inappropriate dispensing decisions may contribute to the availability of these

medicines for non-medical use. Consequently, evaluating actual dispensing behavior is important for identifying gaps between regulatory requirements and routine pharmacy practice. The simulated client methodology provides a useful approach for evaluating dispensing behavior under routine conditions. Unlike conventional questionnaire-based studies, in which respondents may modify their answers because they are aware of being assessed, a simulated client can provide information regarding actual interactions between pharmacy personnel and medicine-seeking individuals. This approach can therefore help identify dispensing patterns, prescription-verification practices, counseling behavior, and factors that may influence decisions regarding controlled medicines. Evidence obtained through such assessments may support the development of improved monitoring mechanisms, standardized dispensing procedures, professional training, and regulatory interventions [11]. The inappropriate availability and use of narcotic and controlled medicines constitute a public health concern at both national and international levels. Studies from different regions have identified weaknesses in medicine supply systems, dispensing controls, and stock-management practices as factors that may contribute to inappropriate access to controlled medicines. Concerns regarding opioid misuse have been reported in North America and Europe, while increasing evidence from Asian and African countries indicates that substance-use problems are also expanding in these regions [13].

Pakistan has likewise experienced substantial challenges associated with narcotic and controlled medicine misuse and drug dependence. Despite the presence of stringent anti-narcotics legislation, substance misuse remains an important social and public health issue. Reports over recent decades have documented the use of substances such as methamphetamine (“ice”), while outbreaks related to consumption of adulterated alcoholic products have also resulted in serious morbidity and mortality. Injection-related drug use has additionally contributed to concerns regarding the transmission of blood-borne infections, including hepatitis B, hepatitis C, and HIV/AIDS. The continuing burden of substance misuse highlights the need for coordinated interventions involving regulatory authorities, healthcare professionals, pharmacy personnel, and public health institutions [14].

In this context, examining the dispensing of narcotic and controlled medicines at the pharmacy level is particularly important. Understanding how pharmacy personnel respond to requests for controlled medicines can identify weaknesses in prescription verification, regulatory compliance, patient counseling, and professional oversight. Therefore, the present study employed a simulated client approach to assess the dispensing practices of narcotic and controlled medicines in community and hospital pharmacies. The study specifically sought to determine the extent to which these medicines were supplied and to evaluate the degree of compliance with established regulatory requirements and recommended dispensing practices [12].

## **2 METHODOLOGIES**

### **2.1. STUDY DESIGN**

This was a descriptive cross-sectional study design.

### **2.2. STUDY SETTING**

The study was conducted at all the registered community and hospital pharmacies of district Mardan KP.

### **2.3. INCLUSION AND EXCLUSION CRITERIA**

All community and hospital pharmacies were included but medical stores were excluded.

### **2.4. STUDY DURATION**

Study duration was April 2024 to March 2025.

### **2.5. STUDY POPULATION**

The study was conducted on pharmacists, dispensers, technician and salesman who were involved in dispensing medicine at community and hospital pharmacies of targeted area.

## 2.6. SAMPLING METHOD

A simulated client approach with self-structured questionnaire was used to collect data which remain confidential from the relevant personals.

## 2.7. SAMPLE SIZE

Study size was calculated using Raosoft calculator at 95% of confidence interval with 5% margin of error, N=130.

## 2.8. DATA COLLECTION TOOL

Self-structured questionnaire containing questions regarding knowledge and dispensing practice of personnels was used to collect data

## 2.9. STATISTICAL ANALYSIS

Responses from each pharmacy about drug dispensing were recorded and descriptive statistics was used to calculate frequency and percentage by using statistical package for social sciences (SPSS version 20).

## 2.10. ETHICAL CONSIDERATION

This study was conducted by the permission of respective The Vertex College with Abdul Wali Khan University Mardan (AWKUM),. All procedure was performed in this study and conducted with ethical standards [15].

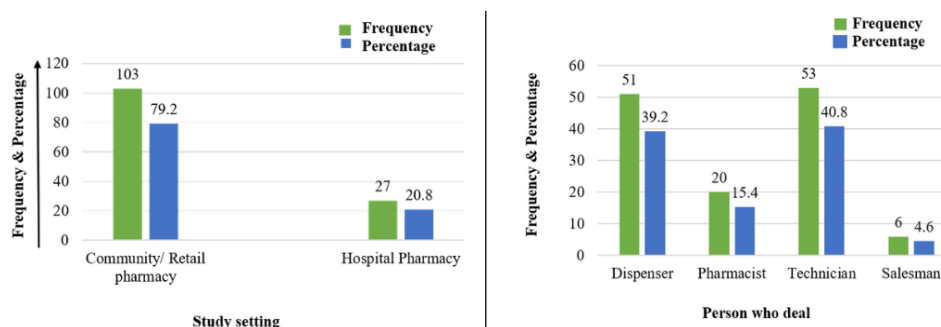
## 3. RESULTS

### 3.1. DEMOGRAPHIC CHARACTERISTICS

The study was comprised of total 130 pharmacies, out of which 103 (79.2%) were community/retail pharmacies and 27 (20.8%) were hospital pharmacies. Out of 130 person who deal, 51 (39.2%) were dispensers, 20 (15.4%) were pharmacists, 53 (40.85%) were pharmacy technicians and 6 (4.65%) were salesman. A detailed description given in the table 3.1 below;

**Table 3.1: Demographic characteristics**

| Demographic Characteristics | Type of pharmacy           | Frequency (n) | Percentage (%) |
|-----------------------------|----------------------------|---------------|----------------|
| Study setting               | Community/ Retail pharmacy | 103           | 79.2           |
|                             | Hospital Pharmacy          | 27            | 20.8           |
| Person who deals            | Dispenser                  | 51            | 39.2           |
|                             | Pharmacist                 | 20            | 15.4           |
|                             | Technician                 | 53            | 40.8           |
|                             | Salesman                   | 6             | 4.6            |



**Figure 1: Indicating the demographic characteristics of investigated area**

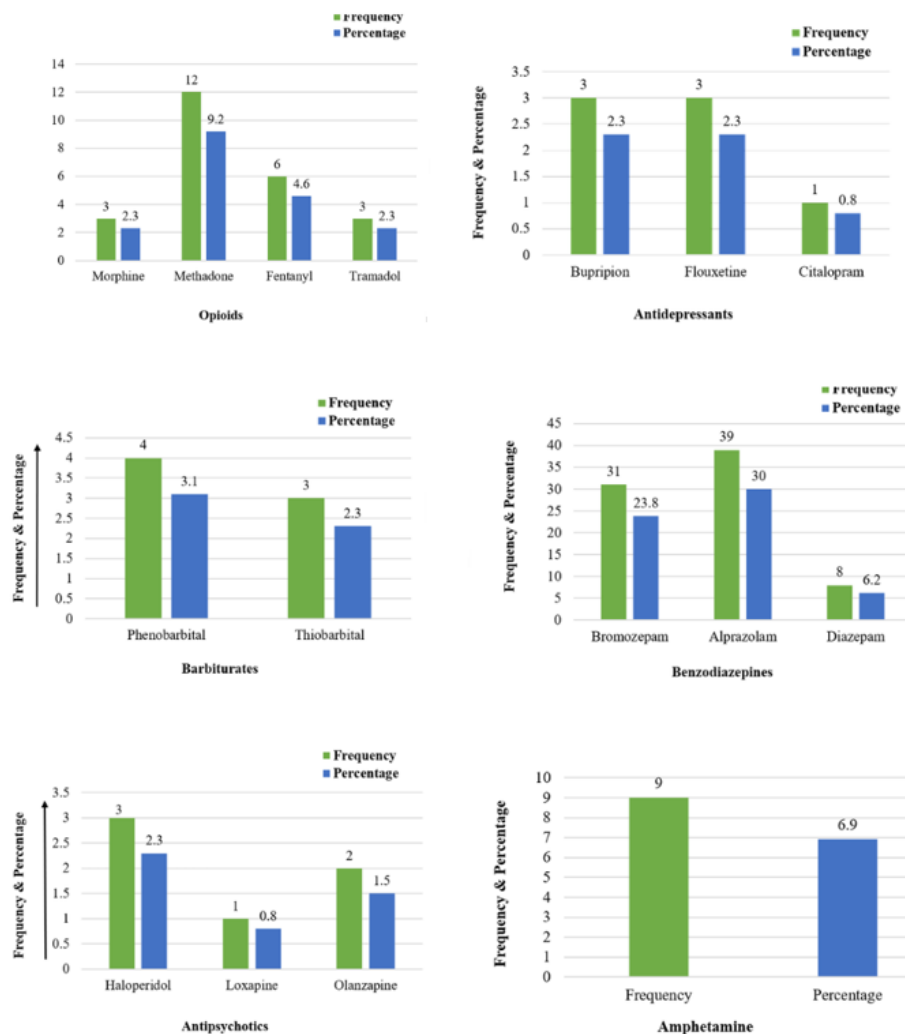
### 3.2. DRUGS DEMANDED TO CHECK PRACTICE

Six classes of narcotics and controlled drugs were asked without prescription which include opioids, antidepressants, barbiturates, benzodiazepines, antipsychotics

and CNS stimulant. Among opioids 3 (3.3%) asked were morphine, 12 (9.2%) asked were methadone, 6 (4.6%) asked were fentanyl and 3 (2.3%) asked were tramadol. From antidepressant class, 3 (2.3%) were bupropion, 3 (2.3%) were fluoxetine, 1 (0.8%) were citalopram. From barbiturates, 4 (3.2%) were phenobarbital, 3 (2.3%) were thiobarbital. From benzodiazepines, 31 (23.8%) were bromazepam, 39 (30%) were alprazolam and 8 (6.2%) were diazepam. From antipsychotics, 3 (2.3%) were haloperidol, 1 (0.8%) was loxapine and 2 (1.5%) were olanzapine. From CNS stimulant, only amphetamine 9 (6.9%) were asked from pharmacies. A detailed description is given in the table 3.2 below;

**Table 3.2: Drugs that were asked to check practice**

| Drugs           |               | Frequency | Percentage (%) |
|-----------------|---------------|-----------|----------------|
| Opioids         | Morphine      | 3         | 2.3            |
|                 | Methadone     | 12        | 9.2            |
|                 | Fentanyl      | 6         | 4.6            |
|                 | Tramadol      | 3         | 2.3            |
| Antidepressants | Bupropion     | 3         | 2.3            |
|                 | Fluoxetine    | 3         | 2.3            |
|                 | Citalopram    | 1         | 0.8            |
| Barbiturates    | Phenobarbital | 4         | 3.1            |
|                 | Thiobarbital  | 3         | 2.3            |
| Benzodiazepines | Bromazepam    | 31        | 23.8           |
|                 | Alprazolam    | 39        | 30             |
|                 | Diazepam      | 8         | 6.2            |
| Antipsychotics  | Haloperidol   | 3         | 2.3            |
|                 | Loxapine      | 1         | 0.8            |
|                 | Olanzapine    | 2         | 1.5            |
| CNS stimulant   | Amphetamine   | 9         | 6.9            |



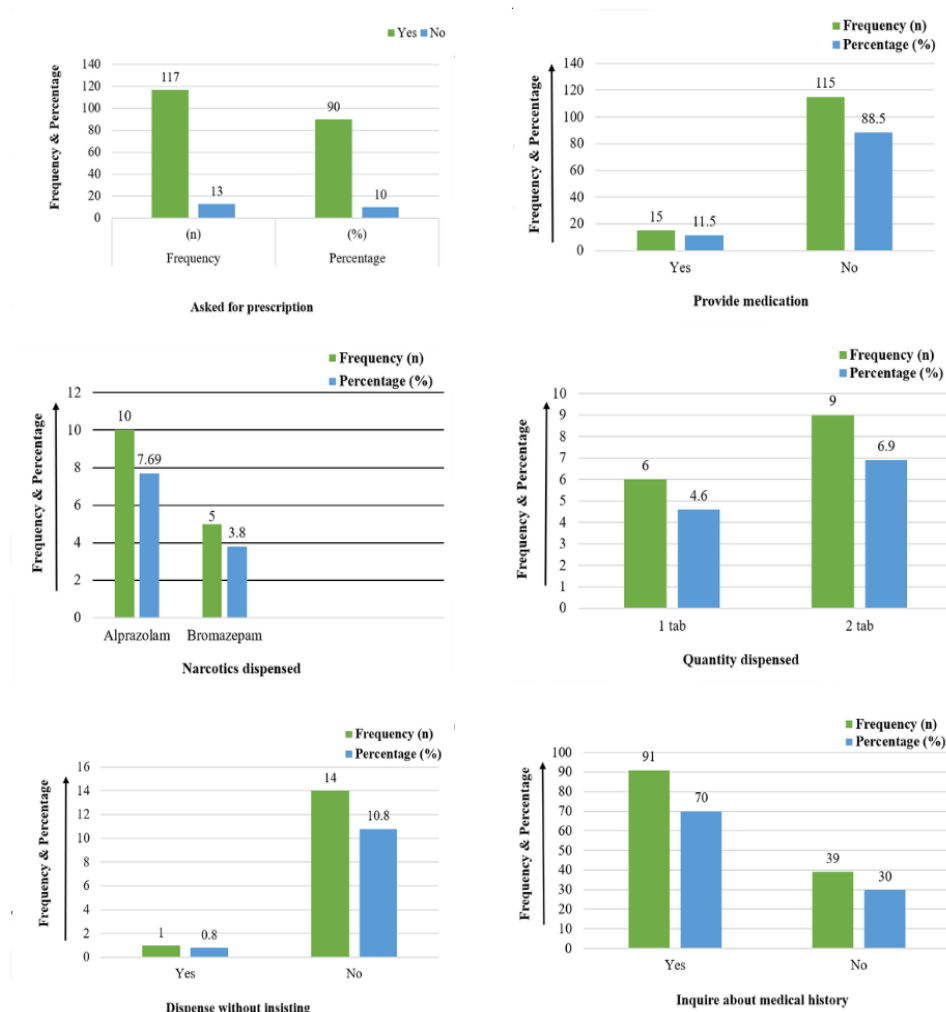
**Figure 2: Frequency and Percentage of Controlled drugs that were Sold repeatedly**

### 3.3. DISPENSING CHARACTERISTICS

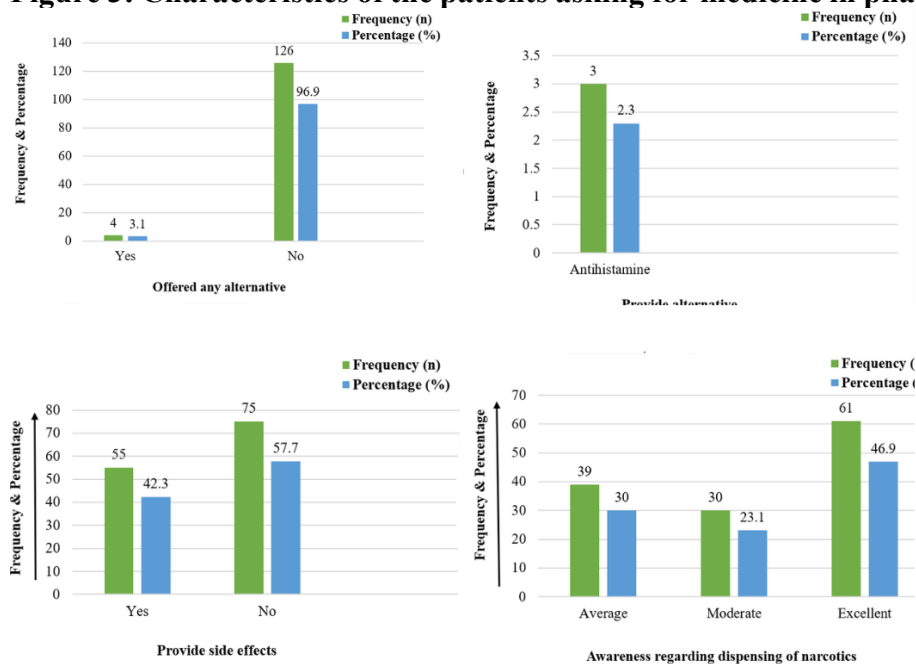
In total of 130 pharmacies 117 (90%) pharmacies asked for prescription of the demanded drugs and only 10% Pharmacies didn't ask any question about prescription related and only 15 (11.5%) pharmacies provide required medication and 115 (88.5%) pharmacies didn't provide the medication. Out of all the narcotics asked, only Alprazolam 10 (7.69%) and bromazepam 5 (3.8%) were dispensed in total of 15 pharmacies having quantity of 1 tablet was 6 (4.6%) and 2 tablets were dispensed 9 (6.9%) only and in these pharmacies only 1 (0.8%) were dispensed without insisting and 14 (10.8%) were dispensed after insisting. In total of 130 pharmacies, 91 (70%) pharmacies were inquired about medical history of taking such medicines and 39 (30%) didn't inquire about it. Only 3 (2.3%) pharmacies provide alternative of antihistamine and 126 (96.9%) didn't provide any other alternative. Out of 130 pharmacies 55 (42.3%) pharmacies provide side effects of using these drugs and 75 (57.7%) didn't provide any side effects of these drugs. Awareness of pharmacies regarding dispensing of narcotics and controlled substances were include 39 (30%) average, 30 (23.1%) moderate and 61 (46.9%) were excellent. A detailed description is given in the table 3.3 below.

**Table 3.3. Dispensing characteristics**

| <b>Dispensing variables</b>                                                                  |               | <b>Frequency (n)</b> | <b>Percentage (%)</b> |
|----------------------------------------------------------------------------------------------|---------------|----------------------|-----------------------|
| Were we asked for prescription                                                               | Yes           | 117                  | 90                    |
|                                                                                              | No            | 13                   | 10                    |
| Did they provide required medication                                                         | Yes           | 15                   | 11.57                 |
|                                                                                              | No            | 115                  | 88.5                  |
| Narcotics dispensed                                                                          | Alprazolam    | 10                   | 7.69                  |
|                                                                                              | Bromazepam    | 5                    | 3.8                   |
| Quantity dispensed                                                                           | 1 tab         | 6                    | 4.6                   |
|                                                                                              | 2 tabs        | 9                    | 6.9                   |
| Did they dispense without insisting                                                          | Yes           | 1                    | 0.8                   |
|                                                                                              | No            | 14                   | 10.8                  |
| Did they inquire about medical history or purpose of taking medicines                        | Yes           | 91                   | 70                    |
|                                                                                              | No            | 39                   | 30                    |
| Were we offered any alternative non-prescription option or advice of changing your medicines | Yes           | 4                    | 3.1                   |
|                                                                                              | No            | 126                  | 96.9                  |
| Provide alternative                                                                          | Antihistamine | 3                    | 2.3                   |
| Did they provide any side effects or usage instructions                                      | Yes           | 55                   | 42.3                  |
|                                                                                              | No            | 75                   | 57.7                  |
| Overall awareness of dispensing of narcotics and controlled substances                       | Average       | 39                   | 30                    |
|                                                                                              | Moderate      | 30                   | 23.1                  |
|                                                                                              | Excellent     | 61                   | 46.9                  |



**Figure 3: Characteristics of the patients asking for medicine in pharmacies**



**Figure 4: Replies of Pharmacies and Awareness regarding dispensing of narcotics**

### 3.4. CROSS TABULATION

#### 3.4.1. Study Setting verses Type of pharmacy

The comparison between dispensing variables and type of pharmacies gives detailed insight. In community pharmacies/retail pharmacies majority i.e. 93 asked for prescription whereas in hospital pharmacies this number was significantly lower at 24.

Conversely, instance where we were not asked for prescription were comparatively infrequent in both settings. Concerning with the provision of required medication, a notably disparities exist, where only 14 instances recorded in community/ retail pharmacies compared to only 1 in hospital pharmacies. Regarding the dispensing of narcotics alprazolam and bromazepam is dispensed frequently in community/retail pharmacies i.e. 8 alprazolam, 5-bromazepam were dispensed while none of the narcotics were dispensed by hospital pharmacies and the quantity dispensed were only 1 or 2 tablets which they dispense us upon insisting from most of the pharmacies while only one retail/ community pharmacy dispensed us without insisting. Additionally, inquiries about medical history or purpose of taking medicine were also prevalent in community/retail pharmacies i.e. 32 were inquire about medical history and purpose while in case of hospital pharmacies, this number was 7. Concerning about provision of any side effects or usage instruction, mostly i.e. 58 did not provide us any side effect or usage instruction, only 45 community/retail pharmacies provided us with side effect while this number was fewer in case of hospital pharmacies i.e. 10 and 24 hospital pharmacies did not provide us the information. Regarding the policy for dispensing of narcotics and controlled substances, majority i.e. 102 community/retail pharmacies had policy while 24 hospital pharmacies had the policy regarding dispensing of controlled substances and narcotics. A detailed description is given in the table 4.4.1 below;

**Table 3.4. Study setting and type of pharmacy**

| Dispensing variables                                                  |            | Type of pharmacy          |                   |
|-----------------------------------------------------------------------|------------|---------------------------|-------------------|
|                                                                       |            | Community/Retail pharmacy | Hospital pharmacy |
| Were we asked for prescription                                        | Yes        | 93                        | 24                |
|                                                                       | No         | 10                        | 3                 |
| Did they provide required medication                                  | Yes        | 14                        | 1                 |
|                                                                       | No         | 89                        | 26                |
| Narcotics dispensed                                                   | Alprazolam | 8                         | 0                 |
|                                                                       | Bromazepam | 5                         | 0                 |
| Quantity dispensed                                                    | 1 tab      | 6                         | 0                 |
|                                                                       | 2 tabs     | 8                         | 1                 |
| Did they dispense without insisting                                   | Yes        | 1                         | 0                 |
|                                                                       | No         | 13                        | 1                 |
| Did they inquire about medical history or purpose of taking medicines | Yes        | 71                        | 20                |
|                                                                       | No         | 32                        | 7                 |
| Were we offered any alternative nonprescription                       | Yes        | 2                         | 2                 |
|                                                                       | No         | 101                       | 25                |

|                                                                   |               |    |    |
|-------------------------------------------------------------------|---------------|----|----|
| medication option or advice of changing your medicine             |               |    |    |
| Provide alternative                                               | Antihistamine | 2  | 1  |
| Did they provide any side effects or usage instruction            | Yes           | 45 | 10 |
|                                                                   | No            | 58 | 17 |
| Overall awareness of dispensing of narcotics and controlled drugs | Average       | 32 | 7  |
|                                                                   | Moderate      | 25 | 5  |
|                                                                   | Excellent     | 46 | 15 |

### 3.4.2 Provider versus Dispensing Characteristics

The request for narcotics and controlled drugs was directed to 51 dispensers, 20 pharmacists, 53 technicians and 6 salesmen while comparing dispensing variables with who dispense, 45 dispensers had inquired about prescription while this number is 19 in case of pharmacist, in case of dispenser 45, 48 technicians and 5 salesmen. Predominately narcotics were provided which include alprazolam, bromazepam i.e. 4 times alprazolam was dispensed by pharmacy technicians while salesman didn't dispense any of the required medications. Bromazepam was dispensed once by dispenser, pharmacist and pharmacy technicians while the quantity of medicines dispensed is 1 which was dispensed 7 times and twice was dispensed 9 times. While such medications were dispensed upon insisting only once dispensed without insisting. Majority of personnel's who dispensed the medication asked us about the medical history/ purpose of taking medication i.e. 34 dispensers, 17 pharmacists, 36 technicians and 4 salesmen inquired while 17 dispensers and technicians, 3 pharmacists and 2 salesmen did not inquire about medical history or purpose of taking medication. Regarding to offering any non-prescription option or alternative, only twice times pharmacist and one time dispenser and technician offered i.e. they suggested the use of anti-allergic medication. 24 dispensers, 11 pharmacists, 18 technicians and only 2 salesman warned simulated clients about the side effects. Overall awareness regarding dispensing of narcotic and controlled drugs was excellent with 61 instances, technicians in 25 instances, pharmacist in 11 instances and 24 in case of dispensers. A detailed description is given in table 4.4.2 below;

**Table 3.5. Provider versus dispensing variables**

| Dispensing variables                 |     | Who dispense |            |            |          |
|--------------------------------------|-----|--------------|------------|------------|----------|
|                                      |     | Dispenser    | Pharmacist | Technician | Salesman |
| Were we asked for prescription       | Yes | 45           | 19         | 48         | 5        |
|                                      | No  | 6            | 1          | 5          | 1        |
| Did they provide required medication | Yes | 6            | 4          | 3          | 2        |
|                                      | No  | 45           | 16         | 50         | 4        |

|                                                                                              |               |    |    |    |   |
|----------------------------------------------------------------------------------------------|---------------|----|----|----|---|
| n                                                                                            |               |    |    |    |   |
| Narcotics dispensed                                                                          | Alprazolam    | 4  | 0  | 4  | 0 |
|                                                                                              | Bromazepam    | 1  | 3  | 1  | 0 |
| Quantity dispensed                                                                           | 1 tab         | 4  | 1  | 1  | 0 |
|                                                                                              | 2 tab         | 2  | 3  | 2  | 2 |
| Did they dispense without insisting                                                          | Yes           | 0  | 0  | 1  | 0 |
|                                                                                              | No            | 6  | 4  | 2  | 2 |
| Did they inquire about medical history                                                       | Yes           | 34 | 17 | 36 | 4 |
|                                                                                              | No            | 17 | 3  | 17 | 2 |
| Were we offered any alternative non-prescription option or advice of changing your medicines | Yes           | 1  | 2  | 1  | 0 |
|                                                                                              | No            | 50 | 18 | 52 | 6 |
| Provide alternative                                                                          | Antihistamine | 0  | 2  | 1  | 0 |
| Did they provide any side effects or usage instruction                                       | Yes           | 24 | 11 | 18 | 2 |
|                                                                                              | No            | 27 | 9  | 35 | 4 |
| Overall awareness of dispensing of narcotics                                                 | Average       | 20 | 3  | 16 | 0 |
|                                                                                              | Mode          | 7  | 6  | 12 | 5 |
|                                                                                              | Excellent     | 24 | 11 | 25 | 1 |

#### 4. DISCUSSION

A descriptive cross-sectional study using a simulated client approach was conducted to assess dispensing practices of narcotics and controlled substances in 130

registered pharmacies of District Mardan [16]. The results of this study showed that large proportion of providers have knowledge about their misuse and majority of them didn't dispense the required medication. While a similar cross-sectional study was performed in four big cities of Punjab reported that Punjab was the hub of addicts for addiction of these narcotic drugs [17-19]. Prevalence of dispensing without prescription varies across different regions, revealing a concerning global trend. The results of present study conducted in Mardan showed that only 11% pharmacies dispensed the drugs without prescription. These results were aligned with a similar cross-sectional study that was conducted in Uganda, 20-40% pharmacies in Uganda dispensed the drugs without prescription or invalid prescription [20-22]. According to present study which involved 130 pharmacies, providers dispensed 11% benzodiazepines consisting of alprazolam and bromazepam only. Only 9% providers have done bachelors in pharmacy while 15.4% pharmacist were available at that time. The results of the study were aligned with a similar cross-sectional study performed in Karachi having 200 pharmacists showed that 89% providers dispensed medication without prescription to which most of were benzodiazepines [23-25].

In present study antipsychotics were not dispensed and further revealed that these drugs were not available at the pharmacies while 11% pharmacies dispensed only alprazolam and bromazepam. These results were aligned with a similar cross-sectional study which was performed in Nigeria including 151 community pharmacies for common antipsychotics (two each of typical and atypical) namely olanzapine, risperidone, haloperidol, chlorpromazine) for the simulated patients [26]. Almost all, 109 (92.4%), the pharmacists dispensed generic/cheaper antipsychotics over-the-counter while the originator's brands or "expensive" generics such as risperidone, olanzapine was sold only with prescriptions [27-29]. The present study which was performed at 130 community and hospital pharmacies in Mardan, providers didn't dispense antipsychotics without prescription [30]. While in comparison to this study a similar-cross sectional study was conducted in Nigeria including 119 community pharmacies to which 85 pharmacist dispensed antipsychotics without prescription [31]. In the present study, results showed that 30% providers had average knowledge about dispensing of narcotics. While in comparison to this a similar cross-sectional study was conducted in Ethiopia including 144 pharmacist had mean knowledge score was 7.789 and 75 pharmacist had poor knowledge regarding dispensing of psychotropic substances [32].

## **5. CONCLUSION**

The findings demonstrate that dispensing practices for narcotic and controlled medicines varied considerably across the pharmacies evaluated through the simulated client assessment. A majority of pharmacy personnel, particularly technicians, dispensers, and salespersons, appropriately declined to supply the requested medicines and, in several instances, provided information regarding their potential adverse effects. However, a limited number of providers supplied controlled medicines without fully complying with the required dispensing procedures. The observed practices suggest gaps in pharmaceutical knowledge, patient counseling, and appropriate assessment of medication-related needs. These findings emphasize the need for stronger regulatory supervision, continuous training of pharmacy personnel, and improved adherence to prescription and counseling requirements to ensure the safe and responsible use of narcotic and controlled medicines and to minimize their potential for misuse and dependence.

## **CONFLICT OF INTEREST**

all authors have no conflict of interest in this research work.

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