



Research article

Illicit sale of controlled drugs at community pharmacy/medical stores of Punjab, Pakistan: A road to demolition of public health

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ABSTRACT

Sale of controlled drugs without prescription is a burning issue in developing countries like Pakistan. Illicit sale practices lead towards drug abuse and misuse among youngsters and negatively impact the health of youth and economy of any country. Present study aims to highlight the illicit sale practices at community pharmacies/drug stores of Punjab, Pakistan. Study was conducted at community pharmacies/drug stores (n = 200) of Punjab, Pakistan. Sales men at pharmacies/drugs stores were interviewed and then their statements were cross verified by sending fake customers at their community pharmacies to check the extent of illicit sale practices by them. Gathered data was analyzed using SPPS-22. Out of 200 pharmacies, pharmacists were physically present at 5% of pharmacies (n = 200), rest of the 95% pharmacies (n = 190) were being run by non-qualified persons and were found to be engaged in illicit sale practices. Controlled drugs were being provided to customers without prescription, which is a dilemma and need to be addressed for effective policy making. Physical presence of pharmacists at community pharmacies/drug stores is necessary to overcome the illicit sale practices. Effective policy must be developed and implemented by Governmental Authorities to prevent the youth from hazards associated with drug abuse and misuse.

1. Introduction

Non-medical prescription drug use, refers to the consumption of drugs that is not prescribed to that particular patient, or the misuse of prescribed drug for some other purpose (Novak et al., 2016). Worldwide together with Asian countries drug abuse, including consumption of illegal and legal drugs, in young population is increased and became the most critical clinical problem which has serious impact on public health (Abbasi-Ghahramanloo et al., 2015). Center of disease control and prevention CDC reported; In U.S. the death rate because of unintentional drug over use have been increasing and became the 2nd major cause of sudden and accidental deaths. Over dose of opioids was the major reason of these deaths (Okie, 2010). In health care profession, role of community pharmacist is widely distributed. They have a vital contribution in community setup for the development of harm reduction strategies which in future minimize the mortality rate associated with the over dose of opioids (Stopka et al., 2017). All the narcotics and other drugs having significant potential of abuse are classified in Pakistan into Schedule G of Punjab Drug Rules 2017. Over the past few years, In Pakistan there is a substantial rise in the number of drugs addicts. Different factors

contribute in the wide spreading of this disaster as Pakistan has large area where opiates are being produced. Geographically Pakistan is adjacent to Afghanistan and have major trafficking routes for smuggling opiates (Archibald et al., 2013). In Pakistan the standards of community pharmacies and knowledge of dispensers are not much high (Abbas et al., 2015). Non availability of pharmacists, poor handling and validation of prescription are leading factors increased incidence of drug abuse and misuse. All drugs whether prescription or OTC are dispensed in same way. Even most of the time patients are entertained without prescription. Although laws are present for the sale of drugs but implementation and accountability is not up to the mark (Hussain et al., 2013). Current study aims to highlight the illicit sale practices being followed by drug stores/community pharmacies in Pakistan, so that effective policy may be developed to overcome this increasing menace of drugs in Punjab, Pakistan.

2. Methodology

Structured questionnaires (SNA & ISDS) were used to gather information from sale persons/pharmacists regarding sale practices of

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psychoactive substances. Face validity, content validity and reliability of questionnaires were conducted through pilot study and were found to be satisfactory. Randomized selection of cities was made; covering the central, northern and southern Punjab. To cover the whole province of Punjab, four major group of cities were constituted, Group A (Lahore, Qasur, Pattoki, Okara and Sahiwal) having total of 100 selected community pharmacies/medical stores, Group B (Faisalabad and Sargodha) having total of 25 selected community pharmacies/medical stores, Group C (Multan and Bahawalpur) having total of 25 selected community pharmacies/medical stores, Group D (Rawalpindi and Islamabad) having total of 50 selected community pharmacies/medical stores. Simulated (fake) customers were sent to visit drug sale points and ask for any of the listed prescription drugs without prescription, to assess the response given during interview and the real sale practices.

Sale of Narcotics Analgesics (SNA) tool comprising of five (5) focused questions was asked from the pharmacist/sales person of respective pharmacy/medical stores (N = 200); mainly addressing the socioeconomic class of customers, number of suspected addicts visiting the pharmacy/drug store, often demanded drugs of abuse by suspected addicts and response of the pharmacist/sales person. Information acquired from pharmacists/sales persons was cross verified by another physical visit made by simulated (fake) customers using the tool; Illicit Sale at Drug Stores (ISDS) to purchase two (2) packs of the any of the listed controlled drugs [Oxycodone, Xanax (Alprazolam), Adderall (Amphetamine and Dextroamphetamine), Ritalin (Methylphenidate), Vicodin (Hydrocodone and Acetaminophen), Percocet (Oxycodone and Acetaminophen), Valium (Diazepam), Ambien (Zolpidem), Promethazine/Codeine Syrup; Phenobarbital] without prescription of an authentic practitioner. Each drug sale point was visited twice in a single day by both male and female fake customers, individually, to seek the response shown by sale persons at that drug sale point. Gathered data was analyzed through Statistical Package for Social Sciences Software (SPSS) version 22.

2.1. Ethical approval

All the studies have been approved by the, "Pharmacy Research Ethics Committee" faculty of Pharmacy and Alternative Medicine, Islamia University Bahawalpur under the void reference number, 27-2017/PREC.

3. Results & discussion

3.1. Geographical location of pharmacies/medical stores

Total of 200 community pharmacies/medical stores were selected from different areas of Punjab, Pakistan. Community pharmacies and medical stores were further distributed based upon the nature of location i.e. rural, urban or semi-urban. Socioeconomic status and education level of community varies from region to region. For assessing the illicit use of controlled drugs and number of suspected addicts visiting the community pharmacies/medical stores, total of 40 pharmacies/medical stores were selected from rural areas where education level and socioeconomic status is bit low, total of 146 pharmacies/medical stores were selected from urban areas where socioeconomic status and education level is mostly high, and total of 14 pharmacies/medical stores were selected from semi-

Table 1. Nature of location of pharmacies/medical stores.

Nature of Area	Frequency	Percent	Valid Percent	Cumulative Percent
Rural	40	20.0	20.0	20.0
Urban	146	73.0	73.0	93.0
Semi-urban	14	7.0	7.0	100.0
Total	200	100.0	100.0	

urban areas where socioeconomic status and education level is mostly moderate (Table 1).

3.2. Socioeconomic statuses of customers visiting pharmacies/medical stores

There is close association between socioeconomic status and drug addictive behavior. Similar sort of study was conducted to evaluate impact of socioeconomic status (SES) on nicotine dependence, self-efficacy, and intention to quit. Study demonstrated the strong relationship between SES and behavioral and psychological predictors of addiction cessation across different countries (Siahpush et al., 2006). Sales men/pharmacists present at 14, 8, 50 and 128 selected community pharmacies/medical stores reported that customers of low socioeconomic status, middle socioeconomic status, high socioeconomic status and more than one socioeconomic status mostly visit their community pharmacies/medical stores respectively (Table 2).

3.3. Presence of pharmacists at pharmacies/medical stores

Pharmacy practice in Asia is characterized by insufficient history taking; a lack of appropriate patient referral; poor adherence to treatment guidelines, inappropriate supply of medicines and insufficient counseling (Miller and Goodman, 2016). Majority of the pharmacies/medical stores don't completely comply with the legal requirements in terms of licensing, premises, storage, documentation, narcotics section, drug labeling and prescription checking. This speaks of poor regulation and control by health authorities on the sale and dispensing of medicines in Pakistan (Hussain et al., 2012). The reason behind illicit sale of drugs at community pharmacies/medical stores is non availability of registered pharmacist. Table 3, illustrates the presence of pharmacists at 200 selected pharmacies/medical stores in Punjab. But results were hilarious, pharmacist was present only at 11 drug sale points and 189 drug sale points were being run by non-pharmacists (Table 3).

3.4. City wise distribution of pharmacies/medical stores based upon pharmacist presence

Table 4, illustrates the city wise location of pharmacy/medical store based upon the presence of qualified person/pharmacist. Results were highly alarming, out of 200 pharmacies, pharmacist was present only at 11 pharmacies/medical stores at the time of visit. 25 pharmacies/medical stores from each of Faisalabad/Sargodha and Multan/Bahawalpur region were visited to check the presence of pharmacist, none of the pharmacy/medical store was having pharmacist there. Out of 100 pharmacies/medical stores in the region of Lahore/Qasur/Pattoki/Okara/Sahiwal, pharmacist/qualified person was present at only 7 drug sale points. Out of 50 pharmacies/medical stores in the region of Rawalpindi/Islamabad, pharmacist/qualified person was present at only 4 drug sale points (Table 4).

3.5. Number of suspected addicts who visited the pharmacy in last 7 days

Sale persons at drug sale points were interviewed and asked about, how many suspected addicts usually visit their pharmacy/medical store

Table 2. Socioeconomic statuses of customers visiting pharmacies/medical stores.

Socio-economic Class of Customers	Frequency	Percent	Valid Percent	Cumulative Percent
Low Socioeconomic Class	14	7.0	7.0	7.0
Middle Socioeconomic Class	8	4.0	4.0	11.0
High Socioeconomic Class	50	25.0	25.0	36.0
More than one Socioeconomic Class	128	64.0	64.0	100.0
Total	200	100.0	100.0	

Table 3. Presence of pharmacists at drug sale points.

Presence of Pharmacist	Frequency	Percent	Valid Percent	Cumulative Percent
No	189	94.5	94.5	94.5
Yes	11	5.5	5.5	100.0
Total	200	100.0	100.0	

Table 4. City wise Distribution of Pharmacies/Medical Stores based upon Pharmacist Presence.

City of Pharmacy Location	Presence of Pharmacist		Total
	Absent	Present	
Lahore/Qasur/Pattoki/Okara/Sahiwal	93	7	100
Faisalabad/Sargodha	25	0	25
Multan/Bahawalpur	25	0	25
Rawalpindi/Islamabad	46	4	50
Total	189	11	200

per week. Table 5 illustrates the count of suspected addicts in different regions demanding drugs to satisfy their addiction urge.

3.5.1. Lahore/Qasur/Pattoki/Okara/Sahiwal

Total 100 pharmacies/medical stores were selected from this region, 11 pharmacies/medical stores reported that none of the suspected addict visit their pharmacy, while 33 pharmacies/medical stores informed that less than 50 addicts/week visit their pharmacy; 26 pharmacies/medical stores informed that 50-200 addicts/week visit their pharmacies/medical stores. There were 30 pharmacies/medical stores which reported that more than 200 suspected addicts/week visit their pharmacies/medical stores.

3.5.2. Faisalabad/Sargodha

Total 25 pharmacies/medical stores were selected from this region, 20 pharmacies/medical stores informed that 50-200 addicts/week visit their pharmacies/medical stores. There were 5 pharmacies/medical stores which reported that more than 200 suspected addicts/week visit their pharmacies/medical stores.

3.5.3. Multan/Bahawalpur

Total 25 pharmacies/medical stores were selected from this region, 03 pharmacies/medical stores reported that none of the suspected addict visit their pharmacy, while 15 pharmacies/medical stores informed that less than 50 addicts/week visit their pharmacy; 06 pharmacies/medical stores informed that 50-200 addicts/week visit their pharmacies/medical stores. There was 01 pharmacy/medical store which reported that more than 200 suspected addicts/week visit their pharmacy/medical store.

3.5.4. Rawalpindi/Islamabad

Total 50 pharmacies/medical stores were selected from this region, 07 pharmacies/medical stores reported that none of the suspected addict visit their pharmacy, while 14 pharmacies/medical stores informed that less than 50 addicts/week visit their pharmacy; 09 pharmacies/medical stores

informed that 50-200 addicts/week visit their pharmacies/medical stores. There were 20 pharmacies/medical stores which reported that more than 200 suspected addicts/week visit their pharmacy/medical store.

Out of 200 pharmacies, there were 56 pharmacies, where more than 200 suspected addicts/week visit that pharmacy/medical store; while sale persons at 21 pharmacies/medical stores claimed that none of the suspected addict visits their pharmacy/medical store. These results clearly indicate that pharmacies/medical stores are the hub for suspected addicts for purchasing the drugs to satisfy their addiction (Table 5).

3.6. Area wise distribution of suspected drug Addicts, who visited the pharmacy in last 7 days

Geographical location and development of the area also affects the incidence of addiction which is directly related to socioeconomic status and education level of the community. People in urban areas have easy access to community pharmacies/medical stores as compared to semi-urban and rural areas. Total 40, 146 and 14 pharmacies/medical stores of rural, urban and semi-urban areas respectively were selected at random.

3.6.1. Rural areas

Out of total 40 pharmacies/medical stores located in rural areas, 01 pharmacy/medical store reported that none of the suspected addict visit their pharmacy, while 09 pharmacies/medical stores informed that less than 50 addicts/week visit their pharmacy; 13 pharmacies/medical stores informed that 50-200 addicts/week visit their pharmacies/medical stores. There were 17 pharmacies/medical stores which reported that more than 200 suspected addicts/week visit their pharmacies/medical stores.

3.6.2. Urban areas

Out of total 146 pharmacies/medical stores located in rural areas, 19 pharmacies/medical stores reported that none of the suspected addict visit their pharmacy, while 53 pharmacies/medical stores informed that less than 50 addicts/week visit their pharmacy; 45 pharmacies/medical stores informed that 50-200 addicts/week visit their pharmacies/medical stores. There were 29 pharmacies/medical stores which reported that more than 200 suspected addicts/week visit their pharmacies/medical stores.

3.6.3. Semi urban areas

Out of total 14 pharmacies/medical stores located in rural areas, 01 pharmacy/medical store reported that none of the suspected addict visit their pharmacy, while 03 pharmacies/medical stores informed that 50-200 addicts/week visit their pharmacies/medical stores. There were 10 pharmacies/medical stores which reported that more than 200 suspected addicts/week visit their pharmacies/medical stores.

Visit of suspected addicts at community pharmacies/medical stores in urban areas was observed to be high as compared to semi-urban and rural areas (Table 6).

3.7. Age and gender wise distribution of visitors in drug store/pharmacy as reported by sale person

Sale persons at community pharmacies/medical stores of each area were inquired about age groups of various genders routinely visiting their community pharmacies/medical stores.

Table 5. Number of Suspected Addicts who visited the Pharmacy in Last 7 Days.

Number of Suspected Drug Addicts Visited the Pharmacy in Last 7 days	City of Pharmacy Location				Total
	Lahore/Qasur/Pattoki/Okara/Sahiwal	Faisalabad/Sargodha	Multan/Bahawalpur	Rawalpindi/Islamabad	
None	11	0	3	7	21
Less than 50	33	0	15	14	62
50-200	26	20	6	9	61
More than 200	30	5	1	20	56
Total	100	25	25	50	200

Table 6. Area wise distribution of Suspected Drug Addicts who Visited the Pharmacy in Last 7 days.

Number of Suspected Drug Addicts Visited the Pharmacy in Last 7 days	Pharmacy Area			Total
	Rural	Urban	Semi-urban	
None	1	19	1	21
Less than 50	9	53	0	62
50–200	13	45	3	61
More than 200	17	29	10	56
Total	40	146	14	200

Table 7. Age of Female Visitors in Drug Store/Pharmacy as reported by Sale Person.

Age of Female Visitors	Pharmacy Area		
	Rural	Urban	Semi-urban
Varying Age Groups	40	146	14
Total	40	146	14

Table 8. Age of Transgender Visitors in Drug Store/Pharmacy as reported by Sale Person.

Age of Transgender Visitors	Pharmacy Area		
	Rural	Urban	Semi-urban
More than 25 Years	21	29	10
Varying age groups	19	117	4
Total	40	146	14

Table 9. Age of Male Visitors in Drug Store/Pharmacy as reported by Sale Person.

Age of Male Visitors	Pharmacy Area		
	Rural	Urban	Semi-urban
Greater than 25 Years	1	9	0
Varying Age Groups	39	137	14
Total	40	146	14

3.7.1. Female visitors

All the pharmacies/medical stores (n = 200) selected at random claimed that females of varying age groups visit their pharmacies/medical stores.

3.7.2. Transgender visitors

Out of total 200 pharmacies, rural (n = 21), urban (n = 29) and semi-urban (n = 10) claimed that transgender of age more than 25 years visit their pharmacies/medical stores, while rural (n = 19), urban (n = 117) and semi-urban (n = 4) claimed that transgender of varying age groups visit their pharmacies/medical stores.

3.7.3. Male visitors

Out of total 200 pharmacies, rural (n = 01), urban (n = 09) and semi-urban (n = 0) claimed that males of age more than 25 years visit their

Table 10. Patients demanding narcotic drugs without prescription.

City of Pharmacy Location	Number of Patients Demanding Narcotic Drugs Without Prescription in Last 7 days					
	Less than 50		50–200		More than 200	
	Count	Row N %	Count	Row N %	Count	Row N %
Lahore/Qasur/Pattoki/Okara/Sahiwal	33	33.0%	41	41.0%	26	26.0%
Faisalabad/Sargodha	9	36.0%	12	48.0%	4	16.0%
Multan/Bahawalpur	15	60.0%	9	36.0%	1	4.0%
Rawalpindi/Islamabad	25	50.0%	15	30.0%	10	20.0%

Table 11. Action taken by Pharmacist/Sale Person (Pharmacist/sale Person Words).

Action taken by Pharmacist/Sale Person (Pharmacist/sale Person Words)	Presence of Pharmacist	
	Absent	Present
Refusal to sell or the Product is not available	148	1
Advising	25	9
Hiding product from regular shelf	0	0
Requesting a Prescription	16	1
Calling Police	0	0
Referring the Patient to GP	0	0
No sale to less than 20 years of age	0	0
Calling the doctor to verify	0	0
Calling neighboring departmental store	0	0
Provided the medicine	0	0

pharmacies/medical stores, while rural (n = 39), urban (n = 137) and semi-urban (n = 14) claimed that males of varying age groups visit their pharmacies/medical stores. Results of gender wise distribution of visitors have been illustrated in Tables 7, 8, and 9.

3.8. Patients demanding narcotic drugs without prescription

Sale persons at community pharmacies/medical stores of each area were inquired about number of patients demanding schedule G/narcotics drugs without prescription in last 7 days.

3.8.1. Lahore/Qasur/Pattoki/Okara/Sahiwal

Total 100 pharmacies/medical stores were selected from this region, 33%, 41% and 26% pharmacies/medical stores reported that less than 50 patients, 50-200 patients and more than 200 patients respectively visited their pharmacies/medical stores and demanded narcotic drugs without prescription.

3.8.2. Faisalabad/Sargodha

Total 25 pharmacies/medical stores were selected from this region, 36%, 48% and 16% pharmacies/medical stores reported that less than 50 patients, 50-200 patients and more than 200 patients respectively visited their pharmacies/medical stores and demanded narcotic drugs without prescription.

3.8.3. Multan/Bahawalpur

Total 25 pharmacies/medical stores were selected from this region, 60%, 36% and 4% pharmacies/medical stores reported that less than 50 patients, 50-200 patients and more than 200 patients respectively visited their pharmacies/medical stores and demanded schedule G/narcotic drugs without prescription.

3.8.4. Rawalpindi/Islamabad

Total 50 pharmacies/medical stores were selected from this region, 50%, 30% and 20% pharmacies/medical stores reported that less than 50 patients, 50-200 patients and more than 200 patients respectively visited

Table 12. Response of pharmacist/sale person (fake customer words) on demand of controlled drug.

Drug Demanded by Male Fake Customer from Same Pharmacy	Response of Pharmacist/Sale Person (Male Fake Customer Words)			
	Refused		Provided the Medicine without Prescription	
	Male	Female	Male	Female
Morphine, Pethidine, Codeine Phosphate, Buprenorphine, Phenobarbitone, Alprazolam, Diazepam, Pentazocine	58 (29%)	2 (1 %)	95 (47.5%)	151 (75.5%)
Anti-histamine, Codeine Syrup, Amphetamine	30 (15%)	5 (2.5%)	17 (8.5%)	42 (21%)

their pharmacies/medical stores and demanded narcotic drugs without prescription.

Similar sort of cross-sectional study was conducted from Jan-Feb 2007 in Karachi, Pakistan (Zafar et al., 2008). Of the 572 participants (mean age = 21 ± 1.8 years, Male: Female ratio = 1:1.5), 295 were medical and 277 were non-medical students and the prevalence of self-medication was 76%. Results of city wise distribution of visitors have been illustrated in Table 10.

3.9. Action taken by pharmacist/sale person (pharmacist/sale person words)

Sale persons at community pharmacies/medical stores of each area were inquired about the action taken by them, when the suspected addicts demand drug from them without prescription. Out of 200 pharmacies/drug stores; pharmacists were present at only 11 drug sale points. 99.3% sale persons informed that they refused to sell the drug to suspected addicts without prescription. Results of city wise distribution of visitors have been illustrated in Table 11.

3.10. Action taken by pharmacist/sale person (fake customer words)

Male and female fake customers individually were sent to drug sale points (medical stores/community pharmacies) and response of sale person was observed. Gender of customer also influences the response of sales person, refusal to male fake customers was 44%, while 96.5% of the female fake customers were provided with prescription drugs without prescription.

Tables 12 and 13; illustrate the influence of gender on acquisition of prescription drugs without prescription. 10.5% and 1.5% of the medical stores/community pharmacies; charged the price than labeled price (Table 14).

Table 13. Response of pharmacist/sale person (fake customer words) on demand of alternative controlled drug.

Request for Alternative to Satisfy the Drug Urge (Fake Customer Words)	Presence of Pharmacist			
	No		Yes	
	Male	Female	Male	Female
Refused	64 (32%)	0 (0%)	11 (5.5%)	7 (3.5%)
Provided	125 (62.5%)	189 (89.5%)	0 (0%)	4 (2%)

Table 14. Price charged by pharmacist/sale person from fake customer.

Customer Type	Price Charged from	Presence of Pharmacist	
		No	Yes
Fake Male Customer	Not Applicable	64 (32%)	11 (5.5%)
	Same as written on pack	104 (52%)	0 (0%)
	More than written price	21 (10.5%)	0 (0%)
Fake Female Customer	Not applicable	0 (0%)	8 (4%)
	Same as written on Pack	186 (93%)	3 (1.5%)
	More than written price	3 (1.5%)	0 (0%)

4. Conclusion

Sale of Controlled Drugs/Schedule G Drugs at Community Pharmacies of Punjab, Pakistan is not strictly regulated by law enforcement agencies. Indeed, community pharmacies/medical stores are rapidly growing as a hub for nurturing the menace of drugs. Non-qualified persons at community pharmacies/medical stores are deeply involved in illicit sale practices of controlled drugs without prescription. The community pharmacies, where pharmacists were physically present; illicit sale practices were absent. As Pharmacists are the custodian of patients' drug needs as per his/her health; so, he/she better understands, the harms associated with drug abuse/misuse, so at such pharmacy's sale practices were as per law and narcotics registered were properly maintained. Nonqualified persons at community pharmacies/medical stores are involved in unethical sale practices and destroying the youth of nation. Only 5 per cent of more than 40,000 pharmacies in Pakistan have qualified pharmacists while around 15,000 qualified pharmacists are jobless and an overwhelming number of the medical stores are run by unqualified managers (Felix et al., 2019). There is need for strict regulatory measures against such pharmacies/drug store to overcome the menace of drugs in Pakistan. Although, Government of Punjab, Health Department, is trying to ensure the presence of Pharmacists at Community Pharmacies, but the sale of Controlled Drugs at medical stores is seems to be unregulated. Implementation of Schedule G and presence of qualified person at medical stores is the only possible solution to curb the illicit sale practices.

Declarations

Author contribution statement

Irfan Bashir: Performed the experiments; Wrote the paper.
 Mahmood Ahmad: Conceived and designed the experiments.
 Muhammad Jamshaid: Contributed reagents, materials, analysis tools or data.
 Muhammad Zaman: Analyzed and interpreted the data.

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Data included in article/supplementary material/referenced in article.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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