Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/z2r16v46

Misuse of Prescription Drugs and Self-Medication Practices: A Cross-SectionalProspectiveStudyintheUrbanPopulationofKishanganj,Bihar

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Abstract

Background

Self-medication and prescription drug misuse are growing public health concerns, particularly in developing countries like India, where easy access to over-the-counter (OTC) drugs and limited healthcare accessibility contributetohighprevalencerates.Unregulatedself-medicationcanleadtoadversedrugreactions,antimicrobial resistance,anddrugdependency.Thisstudyaimstoassesstheprevalence,patterns,andfactorsinfluencingself-medication and prescription drug misuse in the urban population of Kishanganj, Bihar.

Methods

Across-sectionalprospectivestudywasconductedatMataGujriMemorialMedicalCollegeandLSKHospital, Kishanganj, Bihar, from April 2017 to September 2017. A total of 249 respondents aged 18 years and above were selected using simple random sampling. Data collection was performed using a structured questionnaire covering demographic details, self-medication practices, commonly used drugs, reasons for self-medication, sourcesofmedication,awarenessofrisks,andexperiencedsideeffects.Ethicalapprovalwasobtainedfromthe Institutional Ethics Committee, and informed consent was secured from all participants. Data were analyzed using SPSS software, employing descriptive statistics, chi-square tests, and logistic regression analysis to evaluate associations between self-medication and various demographic factors.

Results

Theprevalenceofself-medicationwas62.7%(n=156),withpainkillers(86.5%),antibiotics(46.2%),andcough syrups (31.4%) being the most commonly used drugs. The major reasons for self-medication included time- saving (50.0%), cost-saving (34.6%), and previous prescription use (30.8%). Among self-medicators, 53.8% reported adverse effects, including gastrointestinal issues (48.8%), allergic reactions (34.5%), and drug dependency symptoms (16.7%). Additionally, 28.5% of respondents reported prescription drug misuse, with habitual use (45.1%) and stress relief (38.0%) as key contributing factors. The study also found a significant association betweenself-medication and age (p= 0.012), occupation (p= 0.018),and incomelevel (p = 0.029). *Conclusion*

The high prevalence of self-medication and prescription drug misuse in Kishanganj, particularly among young adults,students,andmiddle-income groups, highlightstheurgentneedforstricterpharmacyregulations, public awareness campaigns, and improved healthcare accessibility. Stricter control over OTC drug sales, pharmacist-ledcounseling,andtargetededucationinitiativesarenecessarytocurbirrationalmedicationuseanditsassociated health risks.

Keywords

Self-medication,Prescriptiondrugmisuse,Over-the-counterdrugs,Antimicrobialresistance,Kishanganj,Public health, Medication safety

Introduction

Self-medication is a common yet often underestimated healthcare practice where individuals use pharmaceutical products totreat self-recognized symptoms without professionalmedical consultation. Whileresponsibleself-medicationcanofferimmediaterelief forminorailmentsandreducetheburden onhealthcaresystems,itsinappropriateandexcessiveuseposesseriushealthrisks,includingadverse drug reactions, antibiotic resistance, drug dependency,and the masking of serious medical conditions. In developing countries like India, where access to healthcare services remains a challenge for many, self-medicationandprescriptiondrugmisusehavebecomeincreasinglyprevalent,particularlyinurban populations[1].

The World Health Organization (WHO) recognizes self-medication as a double-edged sword, acknowledging both its benefits and dangers. On one hand, it enables individuals to manage minor illnesses efficiently, reducing unnecessary doctor visits and healthcare costs. On the other hand, unsupervised use of medications—particularly antibiotics, sedatives, and painkillers—can lead to severe public health challenges such as antimicrobial resistance (AMR), addiction, and incorrect dosages, increasing the risk of complications. Prescription drug misuse, particularly among young adults and working professionals, further aggravates these risks, emphasizing the urgent need for comprehensive research and stronger regulatory policies.

In India, self-medication islargely driven by easy access to over-the-counter (OTC) drugs,inadequate regulation of pharmacies, financial constraints, time limitations, and low awareness about the dangers of unsupervised medication use. Several studies in urban and semi-urban regions have reported high prevalence rates of self-medication, with painkillers, antibiotics, and cough syrups being the most frequently used drugs. The emergence of online pharmacies and unregulated drug sales has further facilitated the easy procurement of prescription drugs, increasing the likelihood of misuse, incorrect self-diagnosis, and improper treatment of serious conditions[2,3]

The urban population of Kishanganj, Bihar, comprises individuals from diverse socioeconomic and educational backgrounds, making it an ideal setting to study self-medication and prescription drug misusepatterns.Despitethewidespreadnatureofthisissue,thereislimitedresearchonself-medication behaviors in this region, necessitating a detailed investigation into its prevalence, patterns, and associated factors[4,5].

This study aims to evaluate the prevalence and determinants of self-medication and prescription drug misuse among urban residents of Kishanganj, Bihar. It seeks to identify the most commonly self-medicateddrugs,sourcesofmedication,reasonsforself-medication,andthelevelofpublicawareness regardingitsrisksandconsequences.Additionally,itwillexploretheextentofprescriptiondrugmisuse and its associated health risks, providing evidence-based recommendations for improved drug regulation,public awareness campaigns,and healthcare policies. By addressing these issues, the study will contribute to enhancing medication safety and promoting rational drug use in the community.

MaterialsandMethods

This cross-sectional prospective study was conducted at Mata Gujri Memorial Medical College and LSK Hospital, Kishanganj, Bihar, from April 2017 to September 2017, to assess the prevalence, patterns, and factors associated with the misuse of prescription drugs and self-medication practices in the urban population of Kishanganj. The study included 249 respondents aged 18 years and above, selectedthroughasimplerandomsamplingmethod.Participantswhohadbeenresidingin Kishanganj

for at least six months andprovidedinformed consentwere included, while individuals withcognitive impairments and healthcare professionals were excluded to minimize bias.

Astructuredquestionnairewasusedfordatacollection,coveringdemographicdetails,self-medication practices,commonlyuseddrugs,reasonsforself-medication,sourcesofdrugs,awarenessofrisks,and experiencedsideeffects.Datawascollectedthroughface-to-faceinterviewsandonlinesurveys(Google Formsforliterateparticipants)overthesix-monthstudyperiod.Ethicalapprovalwasobtainedfromthe Institutional Ethics Committee of Mata Gujri Memorial Medical College, and informed consent was taken from all participants.

ThecollecteddatawasenteredintoMicrosoftExcelandanalyzedusingSPSSsoftware(latestversion). Descriptivestatistics,includingfrequencies,percentages,means,andstandarddeviations,wereusedto summarizethefindings.Chi-squaretestsandlogisticregressionanalyseswereperformedtodetermine associations between demographic variables and self-medication/prescription drug misuse practices.

Results:DemographicCharacteristics

Thestudyincluded249respondentsfromtheurbanpopulationofKishanganj,Bihar.Thedemographic characteristics of the participants are summarized in Table 1 and visualized in Figure 1 and Figure 2.

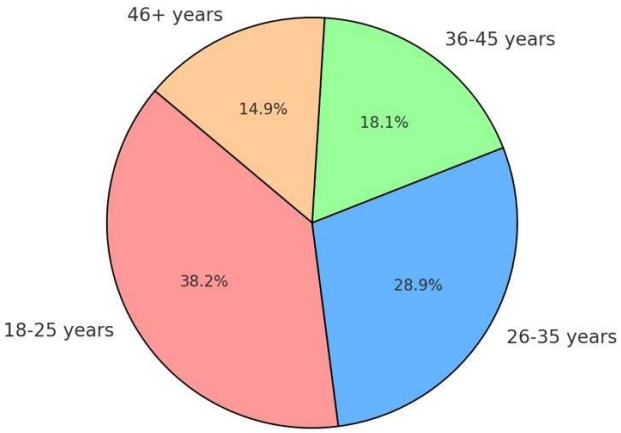
Table1:DemographicCharacteristicsofRespondents(N=249)

Variable	Category	Frequency(n)	Percentage(%)
Gender	Male	124	49.8
	Female	125	50.2
AgeGroup (Years)	18–25	95	38.2
	26–35	72	28.9
	36–45	45	18.1
	46+	37	14.9
Education Level	Primary	22	8.8
	Secondary	68	27.3
	Graduate	97	39.0
	Postgraduate	62	24.9
Occupation	Students	78	31.3
	PrivateEmployees	85	34.1
	GovernmentEmployees	41	16.5
	Unemployed	45	18.1

Age Distribution

The majority of respondents (38.2%) were in the 18–25 years age group, followed by 26–35 years (28.9%), 36–45 years (18.1%), and 46+ years (14.9%) (Table 1). The age distribution is illustrated in Figure1,showingahighproportionofyoungadultsengaginginself-medicationandprescriptiondrug misuse.

Figure 1: Age Distribution of Respondents

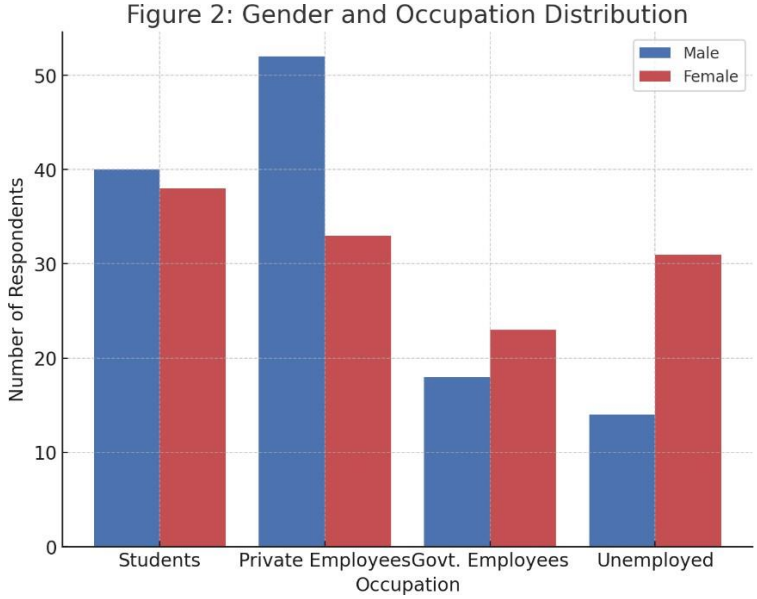


GenderandOccupationDistribution

The gender distribution was nearly equal, with 49.8% male and 50.2% female respondents (Table 1). Regarding occupation, 34.1% were private employees, 31.3% were students, 16.5% were government employees, and 18.1% were unemployed (Figure 2).

Thesefindingssuggestthatyoungadults,students,andprivateemployeesformtheprimarygroup engaging in self-medication and prescription drug misuse

Figure 2: Gender and Occupation Distribution



PrevalenceandPatternsofSelf-Medication

The study found that 62.7% (n = 156) of respondents practiced self-medication, indicating a high prevalence of the practice in the urban population of Kishanganj (Table 2). The most common reason forself-medicationwastime-saving(50.0%),followedbycost-saving(34.6%).Additionally,30.8%of respondents relied on previous prescriptions, while 25.0% cited a lack of access to healthcare as their reason for self-medicating.

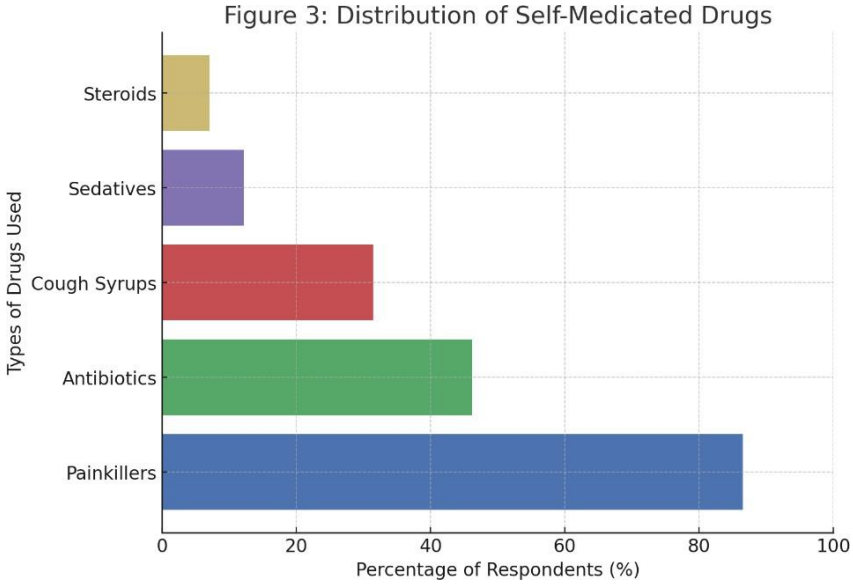
Table2:PrevalenceandPatternsofSelf-Medication(N=249)

Variable	Category	Frequency (n)	Percentage (%)
Self-MedicationPractice	Yes	156	62.7
	No	93	37.3
CommonReasonsforSelf-Medication	Cost-saving	54	34.6
	Time-saving	78	50.0
	Previous Prescription	48	30.8
	LackofHealthcareAccess	39	25.0
CommonlyUsed Drugs	Painkillers (Paracetamol, Ibuprofen)	135	86.5
	Antibiotics (Amoxicillin, Azithromycin)	72	46.2
	Cough Syrups (Dextromethorphan)	49	31.4
	Sedatives(Alprazolam,Diazepam)	19	12.2
	Steroids (Prednisolone, Dexamethasone)	11	7.1

The most frequently self-medicated drugs were painkillers (86.5%), including paracetamol and ibuprofen, followed by antibiotics (46.2%), such as amoxicillin and azithromycin. Cough syrups (31.4%),sedatives(12.2%),andsteroids(7.1%)werealsocommonlyusedwithoutaprescription.This widespread use of antibiotics without medical supervision poses a significant risk of antimicrobial resistance.

Regarding the sources of self-medication, 91.7% of respondents obtained medicines directly from pharmacies without a prescription, highlighting the easy availability of over-the-counter (OTC) drugs. Additionally,30.8%reliedonpreviousprescriptions,while13.5%purchasedmedicinesonline.Family andfriendsalsoplayedaroleininfluencingself-medicationdecisions,with23.1%ofrespondentsusing medications based on their recommendations.

Thesefindingssuggestthatself-medicationislargelydrivenbyconvenience,financialconstraints,and accessibilityissues.Thefrequentuseofpainkillersandantibioticswithoutprofessionalguidanceraises concernsaboutself-treatmentrisks,potentialsideeffects,anddrugresistance.Thedistributionofself-medicated drugs is illustrated in Figure 3, which highlights the predominant use of painkillers and antibiotics among respondents.



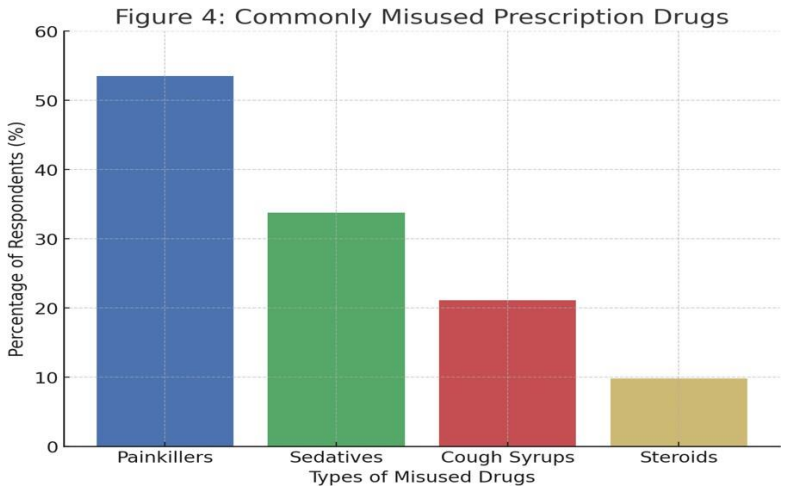
PrescriptionDrugMisuseandSources

The study foundthat 28.5% (n= 71) ofrespondentsreportedmisusing prescription drugs, indicatinga significant issue within the urban population of Kishanganj. The most commonly misused drugs were painkillers (53.5%), followed by sedatives and sleeping pills (33.8%), cough syrups (21.1%), and steroids (9.8%). Among the reasons for prescription drug misuse, habitual use (45.1%) was the most cited,followedbystressrelief(38.0%),sleepproblems(25.4%),andpeerinfluence(15.5%)(Table3).

Table3:PrescriptionDrugMisuseandSources(N=249)

Variable	Category	Frequency(n)	Percentage(%)
Misuse of PrescriptionDrugs	Yes	71	28.5
	No	178	71.5
CommonlyMisused Drugs	Painkillers(Opioids,NSAIDs)	38	53.5
	Sedatives&SleepingPills	24	33.8
	CoughSyrups	15	21.1
	Steroids	7	9.8
Reasonsfor Misuse	Habitual Use	32	45.1
	Stress Relief	27	38.0
	Sleep Problems	18	25.4
	PeerInfluence	11	15.5
SourcesofMisused Drugs	LocalPharmacies	52	73.2
	OnlineOrders	13	18.3
	BlackMarketVendors	6	8.5

Pharmacieswerettheprimarysourceofprescriptiondrugmisuse,with73.2%ofrespondentsobtaining drugs without a valid prescription.

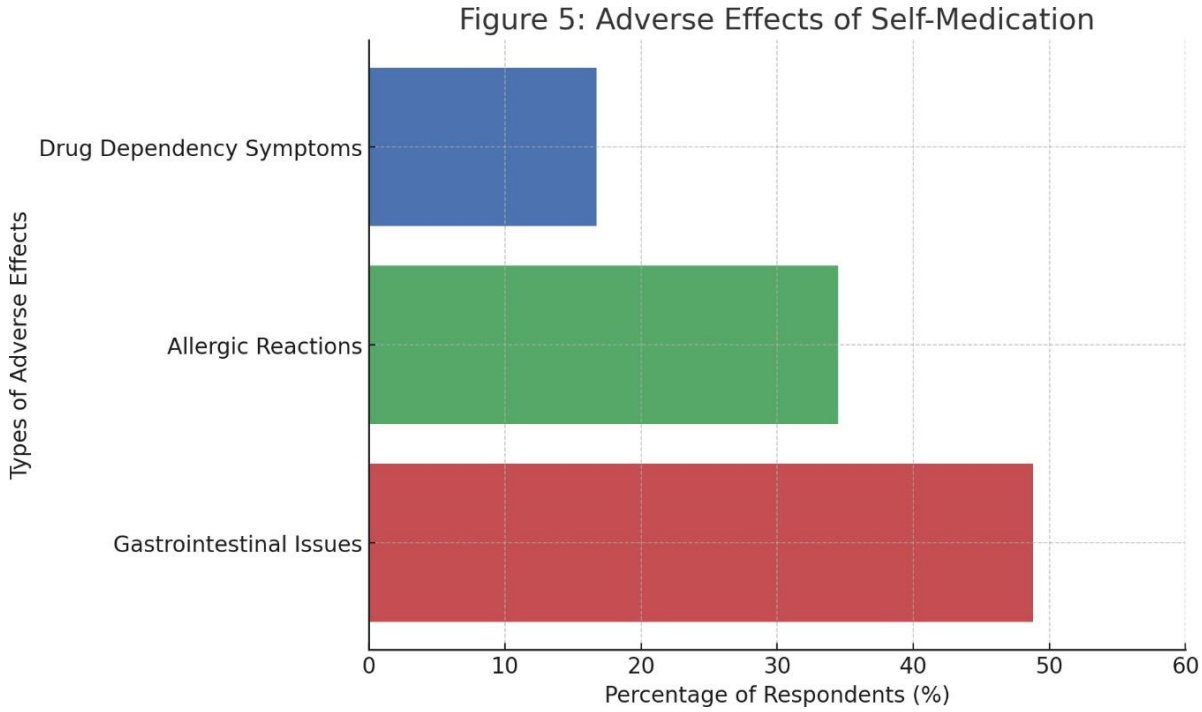


AwarenessandAdverseEffectsofSelf-Medication

Thestudyfoundthat69.1%(n=172)ofrespondentswereawareoftherisksof self-medication,while 30.9% lacked awareness (Table 4). Despite this awareness, 53.8% of self-medicators experienced adverseeffects,highlightingthedangersofunsupervisedmedicationuse.Themostcommonlyreported adverse effects were gastrointestinal issues (48.8%), allergic reactions (34.5%), and drug dependency symptoms (16.7%) (Figure 5).

Table4:AwarenessandAdverseEffectsofSelf-Medication(N= 249)

Variable	Category	Frequency (n)	Percentage (%)
AwarenessofRisks	Yes	172	69.1
	No	77	30.9
ExperiencedAdverseEffects?	Yes	84	53.8
	No	72	46.2
TypesofAdverse Effects	AllergicReactions	29	34.5
	GastrointestinalIssues	41	48.8
	DrugDependencySymptoms	14	16.7
CompletionofFullAntibiotic Course	Completed	98	62.8
	Stopped Once Symptoms Improved	58	37.2



Regarding antibiotic usage, 62.8% of respondents completed the full course of antibiotics, whereas 37.2%discontinueduseoncesymptomsimproved,increasingtheriskofantibioticresistance(Table4). These findings emphasize the need for better public awareness and stricter regulations on over-the- counter drug sales to minimize health risks associated with self-medication.

StatisticalAssociationsBetweenSelf-MedicationandSocioeconomicFactors

The study identified significant associations between self-medication practices and various socioeconomic factors. Younger individuals (18–25 years) were more likely to self-medicate (p = 0.012), while students and private employees showed a higher prevalence compared to other occupational groups(p =0.018). Incomealso playedarole, with respondents earning ₹10,000–50,000 per month being more likely to engage in self-medication (p = 0.029).

Additionally, prescription drug misuse was significantly associated with male respondents (p = 0.015) and those who frequently self-medicated (p = 0.002). The purchase of prescription drugs from online sources showedastrongcorrelationwithmisuse(p =0.008).Thesefindings highlight the influence of age, occupation, income, and accessibility on self-medication and prescription drug misuse.

Table5:StatisticalAssociationsBetweenSelf-MedicationandSocioeconomicFactors

Factor	Significance (p-value)	AssociationwithSelf-Medication
Age(18–25 years)	p = 0.012	Higher self-medication prevalence
Occupation (Students, Private Employees)	p = 0.018	Morelikelytoself-medicate
Income(₹10,000–50,000/month)	p = 0.029	Higher tendency for self-medication
Gender(Male)&PrescriptionDrug Misuse	p = 0.015	Morepronetomisuse
FrequentSelf-Medication&Misuse	p = 0.002	Strong correlation

OnlineDrugPurchases&Misuse	p = 0.008	Significantassociation

Thesefindingssuggestthattargetedawarenesscampaignsandstricterdrugregulationscouldhelp address self-medication and prescription drug misuse in vulnerable populations.

Discussion

PrevalenceandPatternsofSelf-Medication

Thestudyrevealedthat62.7%ofrespondentspracticedself-medication,arateconsistentwithfindings fromsimilarstudiesconductedinurbanareasofIndia.Thishighprevalencehighlightsthewidespread reliance on self-treatment for common ailments, ofteninfluenced by cost-saving factors (34.6%), time constraints (50.0%), and previous prescriptions (30.8%). The easy accessibility of over-the-counter (OTC) drugs, particularly painkillers and antibiotics, further contributes to this trend (Table 2, Figure 3)[6,7].

Painkillers were the most frequently self-medicated drugs (86.5%), followed by antibiotics (46.2%). The misuse of antibiotics without completing the full course (37.2%) poses a significant risk of antimicrobialresistance,agrowingpublichealthconcern.Thefrequentself-medicationofcoughsyrups (31.4%)andsedatives(12.2%)alsosuggestsapotentialriskofdependency,especiallyamongyounger individuals (Table 2).

PrescriptionDrugMisuseandIts Sources

The study found that 28.5% of respondents misused prescription drugs, with painkillers (53.5%) and sedatives (33.8%) being the most commonly abused substances (Table 3, Figure 4). The primary sources of prescription drug misuse were local pharmacies (73.2%).

A significant proportion ofmisuse was linked to habitual use (45.1%), stress relief (38.0%), and sleep problems (25.4%). The misuse of sedatives and sleeping pills, especially among students and working professionals, raises concerns regarding the long-term impact of self-medicating for stress management.[8].

AwarenessofRisksandAdverseEffectsofSelf-Medication

Although 69.1% of respondents were aware of the risks associated with self-medication, a significant 53.8% experienced adverse effects (Table 4, Figure 5). The most commonly reported adverse effects included gastrointestinal issues (48.8%), allergic reactions (34.5%), and drug dependency symptoms (16.7%). This indicates that awareness alone does not necessarily prevent self-medication or its associatedrisks,reinforcingtheneedforpublichealtheducationcampaignstoaddressbothknowledge gaps and behavioral pattern[9].

Additionally, the incomplete course of antibiotic use (37.2%) among self-medicators further exacerbatestheissueofdrugresistance.Thishighlightstheurgentneedforstricterregulationson OTC antibiotic sales and better pharmacist-led counseling on appropriate medication use.

StatisticalAssociationsBetweenSelf-MedicationandSocioeconomicFactors

The study identified strong correlations between self-medication practices and age, occupation, and income levels (Table 5). Young adults (18–25 years, p = 0.012) and students/private employees (p = 0.018)werethemostfrequentself-medicators,likelyduetotheirbusierschedulesandfinancial

constraints. Individuals earning ₹10,000–50,000 per month (p = 0.029) were also more prone to self-medication,indicating amiddle-income grouprelianceon self-treatment rather than formal healthcare services.

Prescriptiondrugmisusewasfoundtobesignificantlyhigheramongmales(p=0.015),andthosewho frequentlyself-medicatedwereatagreaterriskofmisusingprescriptiondrugs(p=0.002).Additionally, the rise of online drug purchases (p = 0.008) correlated strongly with drug misuse, emphasizing the need for strict e-pharmacy regulations to prevent the easy accessibility of controlled substances[10].

ComparisonwithPreviousStudies

The findings align with previousresearch conductedin urban India, where self-medication rates range between 55–70%. A study in Thiruvallur, South India, reported a similar prevalence (65.3%), with antibiotics and painkillers being the most commonly used drugs.

Globally, studies have shown that self-medication is more prevalent in developing countries where healthcare access is limited, further reinforcing the socioeconomic determinants of the practice. Research in Nigeria and Pakistan also reported a higher tendency for self-medication among young adults and students, similar to the present findings[11].

PublicHealthImplicationsandRecommendations

The high prevalence of self-medication and prescription drug misuse in Kishanganj underscores the need for immediate policy interventions and awareness programs. Based on the study findings, the following recommendations are proposed:

1. StrengthenPharmacyRegulations:EnforcestricterlawsonOTCsalesofantibioticsand sedatives to prevent self-medication and drug misuse.
2. PublicAwarenessCampaigns:Educatecommunitiesonthedangersofself-medication,antibiotic resistance, and drug dependency risks.
3. ImproveAccesstoHealthcare:Establishmore affordable healthcareservicestoreducethe financial barriers leading to self-medication.
4. Stricter Online Drug Sales Monitoring: Implement e-pharmacy regulations to curb the illegal sale of prescription drugs online.
5. Promote Pharmacist-Led Counseling: Encourage pharmacists to educate customers about the risks of self-medication and proper antibiotic use.

Conclusion

The study highlights a high prevalence of self-medication (62.7%) and prescription drug misuse (28.5%), particularly among young adults, students, and middle-income groups. The easy availability ofOTCdrugs,lackofawareness,anddigitalaccesstomedicationscontributetothesetrends.Immediate policy interventions, public health campaigns, and pharmacy regulations are crucial to curb self- medication and mitigate its long-term health risks.

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