

Prevalence and the Factors Associated with Self-Medication Practice: A Community-Based Cross-Sectional Study in an Urban Area of Purba Bardhaman, West Bengal, India

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Abstract

Introduction: Self-medication (SM) is popular globally but leads to the wastage of resources, health hazards, and resistance to pathogens. This study aims to ascertain the frequency and manner, in which SM practices were employed by the urban population of Purba Bardhaman district, West Bengal. **Materials and Methods:** The study was an observational cross-sectional one conducted in Burdwan Municipality, West Bengal, India, using a sample size of 180 adults (aged at least 18 years), residing in the study area, i.e., urban slum area for at least 6 months and conducted over 2 months. The data have been collected through a semi-structured schedule consisting of questions on the sociodemographic characteristics of the study subjects and their SM practices. The data were thereafter analyzed, wherein descriptive statistics and a Chi-square test were used. **Results:** It was found that SM was prevalent among 48.9% of the study population, with most participants practicing SM for body pain, headache, and fever. Among the different classes of drugs used, analgesics were the most common (31.8%), followed by antipyretics (25.0%) and antacids (20.5%). The correlation between sociodemographic characteristics and the practice of SM showed that individuals below the age of 36 were found to be more likely to engage in SM, along with individuals who had a low monthly income, and no comorbidities. These subjects were practicing SM more than their counterparts and it was statistically significant with the $P < 0.05$. **Conclusion:** The study emphasizes the importance of awareness and education regarding the proper use of over-the-counter drugs and recommends educating pharmacists and the public about the same. Public health programs should be introduced for the people living in slums to create cautiousness about SM.

Keywords: Allopathic drugs, prevalence, self-medication, slum

INTRODUCTION

Self-medication (SM) practices are adopted by people all over the world. It can be regarded as a type of self-care that not only saves time and money but can also be helpful in times of emergency and in areas where there is a significant inadequacy of health-care facilities.

As per the WHO definition, “SM is the use of drugs to treat self-diagnosed disorders or symptoms or the intermittent or continued use of a prescribed drug for chronic or recurrent diseases or symptoms.”^[1] SM including self-care using over-the-counter (OTC) drugs has changed over time. The outcome of this has been the creation of independent consumers who can effectively utilize self-care treatments, resulting in substantial cost savings for the health-care system.

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Consequently, it has led to the expansion of markets for companies, improved scientific understanding of regulatory decisions, more consumer-friendly labeling for OTC products, and a more consistent and predictable drug approval process.^[2] In addition, it has also led to the procurement of medication without a prescription, reusing old prescriptions to acquire medicines, sharing medicines with family or friends, or utilizing unused medications kept at home.^[3]

Several problems have emerged as a result of SM such as wastage of resources, increased resistance to pathogens,

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and serious health hazards such as adverse reactions and prolonged suffering.^[4] Again SM practices can introduce more drug-resistant strains of bacteria in the long run due to excessive use of antibacterial drugs. Several studies have shown that the lack of awareness of the dosage, side effects, and interactions of the use of OTC drugs could lead to inappropriate practices which may have serious implications in geriatrics, pediatrics, and in conditions such as pregnancy and lactation.^[5] Awareness and proper education regarding this issue should be considered and strict regulation on dispensing potentially harmful drugs should be implemented.^[6] The prevalence of SM is varied, ranging from 12% to as high as 73% as seen from several studies in India and in developing countries.^[7]

Slum dwellers are one of the most vulnerable and socioeconomically impoverished populations in our society. Data are scarce on SM practices and associated correlates among them.

With the above view, the present study was conducted to estimate the prevalence of SM practices and the factors associated with it, if any, in the urban slums of Purba Bardhaman district, West Bengal.

MATERIALS AND METHODS

Study design

It was an observational cross-sectional study conducted over 2 months (August 2022–September 2022).

Study setting

The study was conducted in the urban slum area of Burdwan Municipality, Purba Bardhaman District, West Bengal, India.

The inclusion criteria for the study population were all adults aged at least 18 years residing in the abovementioned study area for at least 6 months and who gave informed consent. The exclusion criteria consisted of adults who were seriously ill.

Sample size

A study was conducted in an urban area of Puducherry, India, where the prevalence of SM was found to be 11.9% among the adult population.^[8] Taking this prevalence, the sample size was calculated using the formula: $n = (Z^2 \times P \times Q)/d^2$ where n = sample size.

Z = Standard normal deviation, taking 95% confidence interval ($\alpha = 0.05$), the value stands at 1.96.

P = Prevalence of SM = 11.9% $Q = (1 - P) = 88.1\%$
 d = Absolute precision which was taken as 5.

Hence, $n = (1.96 \times 1.96 \times 11.9 \times 88.1)/25 = 161.09 \approx 162$. A nonresponse rate of 10% was taken into account and hence the final sample size was 180.

Sampling

There are 144 registered slums under Burdwan Municipality. Taking 10% of the total slums for the study ($10 \div 100 \times 144 \approx 15$), 15 slums were chosen by simple random sampling from a total

of 144 slums. Thereafter ($180 \div 15 = 12$), 12 eligible study subjects were selected from each slum giving a total sampling size of 180. For this, a sampling frame for each slum was prepared separately enlisting all adults residing there, by their names and addresses. From this frame, using simple random sampling technique, 12 study participants were selected.

Study tools and techniques

The data were collected with the help of a predesigned, pretested, semi-structured schedule which had two sections: The first section had questions on sociodemographic characteristics of the study participants and the second section had questions related to information regarding the SM practices of the study subjects and the variables related to it.

To increase the content validity of the schedule, a review of the relevant literature was conducted and experts from the Department of Community Medicine, Burdwan Medical College, reviewed the draft schedule. Based on the suggestions of experts and the outcome of pretesting, the schedule was further modified. Selected study subjects were interviewed individually using the final predesigned, pretested semi-structured schedule through home visits.

Data collection

The study participants were explained the purpose of the study and the importance of their responses. Following this, verbal consent to participate in the study was taken. Confidentiality and anonymity were assured. Data were thereby collected by interviewing them using the prepared schedule.

Data analysis

The data which were collected were checked for completeness and consistency and then entered in the computer in Microsoft Excel 2016 (Microsoft, Redwoods, WA, USA) datasheet. Data were organized and presented according to descriptive statistics in the form of tables and diagrams. The study's results were determined by analyzing SM habits over the past month. Participants were divided into two groups based on whether they engaged in SM or not. Analytical statistics, in the form of a Chi-square test, were applied and $P < 0.05$ was considered significant. Data were analyzed using Statistical Package for Social Sciences Inc. (IBM SPSS Statistics 20.0, Windows, 2012, Chicago, IL, USA) software.

Ethical consideration

The Institutional Ethics Committee of Burdwan Medical College and Hospital, West Bengal, granted ethical clearance for the study, vide memo no: BMC/I.E.C./315 dated April 25, 2022, following which data were collected after taking prior informed consent from the study participants assuring them that the confidentiality of the given information will be maintained.

RESULTS

The main goals of the study were to determine the prevalence of SM and the reasons for its practice, as well as to identify

any potential associations between the sociodemographic characteristics of the study population and SM.

The results were divided into three sections, i.e., Section A, Section B, and Section C.

Section A: Sociodemographic characteristics

The median age of the study population was found to be 36 years. About 31.1% belonged to the age group 18–27 years, followed by 38–47 years (25.6%). Most of the study subjects were females (68.3%) and Hindus (97.2%) by religion while the remaining were Muslims. About 57.8% of them belonged to the general caste, followed by 31.7% scheduled caste, and the remaining were scheduled tribes or OBC. Thirty-five percentage of the study population were illiterate and 21.1% had education up to middle school. About 48.3% were employed and 44.4% were stay-at-home individuals (retired, homemakers, etc.). Most of them were married (80.6%) living in a nuclear family (52.8%) having ≤ 4 family members (53.9%). The socioeconomic class (as per the modified B. G. Prasad scale, 2022) revealed that 43.9% of them belonged to the upper middle class, followed by the upper class (33.3%) and the remaining were middle class, lower middle class, and lower class. A majority (82.8%) of the study subjects had no comorbidity [Table 1].

Section B: Self-medication practice

In this study, the prevalence of SM was found to be 48.9% among the study population. Most of the study subjects (29.5%) who practiced SM within a period of 1 month found SM to be an easy and convenient method to relieve their symptoms. About 26.1% of them resorted to SM as an emergency, 18.2% of study subjects had a previously good experience with the drug that they took for SM, 14.8% of study subjects believed that the illness was “mild” and hence, SM would alleviate the symptoms, and 11.4% resorted to SM due to lack of time to visit the physician [Figure 1]. Majority of the study subjects (35.2%) practiced SM for symptoms such as body pain, headache (20.5%), and fever (18.2%).

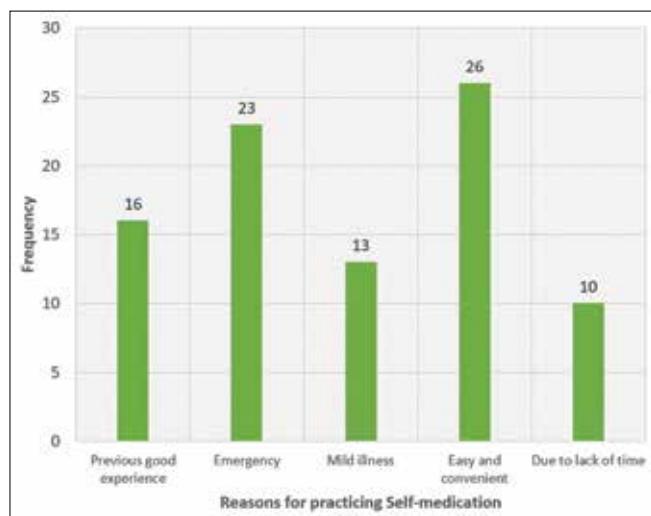


Figure 1: Bar graph showing reasons for practicing self-medication ($n = 88$)

SM method opted for family planning (2.3%) (using oral contraceptive pills) as well.

Table 1: Sociodemographic characteristics of the study subjects ($n=180$)

Variables and categories	Frequency (%)
Age (years)	
18–27	56 (31.1)
28–37	40 (22.2)
38–47	46 (25.6)
48–57	17 (9.4)
58–67	18 (10.0)
68–77	2 (1.1)
>78	1 (0.6)
Sex	
Male	57 (31.7)
Female	123 (68.3)
Religion	
Hindu	175 (97.2)
Muslim	5 (2.8)
Caste	
General	104 (57.8)
OBC	12 (6.7)
SC	57 (31.7)
ST	7 (3.9)
Marital status	
Unmarried	12 (6.7)
Married	145 (80.6)
Divorced	7 (3.9)
Widow/widower	16 (8.9)
Type of family	
Nuclear	95 (52.8)
Joint	85 (47.2)
Number of family members	
≤ 4	97 (53.9)
>4	83 (46.1)
Education	
Illiterate	67 (37.2)
Primary school	32 (17.8)
Middle school	38 (21.1)
Secondary	21 (11.7)
Higher secondary and above	22 (12.2)
Occupation	
Employed	87 (48.3)
Unemployed	13 (7.2)
At home*	80 (44.4)
Socioeconomic status (Modified B.G. Prasad Scale January 2022)	
Upper class (8220 and above)	60 (33.3)
Upper middle class (4110–8219)	79 (43.9)
Middle class (2465–4109)	34 (18.9)
Lower middle class (1230–2464)	5 (2.8)
Lower class (<1230)	2 (1.1)
Comorbidities	
None	149 (82.8)
Present	31 (17.2)

*At home-retired or homemaker

Analgesics were the most common class of drugs (31.8%) used for SM by the study subjects, followed by antipyretics (25.0%) and antacids (20.5%). Oral contraceptive pills were also used for SM (2.3%) for family planning purposes, along with the usage of homeopathic medicines (2.3%) and multivitamins (2.3%). Antibiotics were used by only 3.4% of study subjects for SM [Table 2]. Majority of the study subjects procured the drug from a nearby pharmacy (89.7%), 5.7% took the drug from their family members, 2.3% from hospitals, and participants who used homeopathic medicine for SM purchased the drug from a homeopathic pharmacy (2.3%). Among the study subjects, 71.60% obtained the medicine by explaining the symptoms to the pharmacist, 17.05% showed old prescriptions to get the medicine, and 10.22% purchased the medicine

by mentioning the name of the drug. Fifty-eight percent of study subjects who practiced SM checked the date of expiry of the drug before consuming it. About 71.6% of study subjects had knowledge about the dosage of the drug they took for SM, only a mere 3.4% of individuals knew about the side effects of the drug, 63.63% knew what the drug was actually used for among which majority of them got the information from pharmacists, and just 2.3% out of 88 study subjects knew about the contraindications of the drug that they used for SM.

Section C

From the findings revealing the association between sociodemographic characteristics and SM behavior, it was seen that study subjects aged <36 years, had significantly higher percentage of self-medicators compared to the ones more than 36 years. Similarly, study subjects having low monthly income and with no comorbidities were practicing SM more than their counterparts. In all these cases, the $P < 0.05$ and hence, statistically significant [Table 3].

DISCUSSION

This study conducted in urban West Bengal found that the prevalence of SM was 48.9%. Studies conducted in urban slums of Karnataka too found the prevalence of SM to be 47% which was almost similar to our study.^[9,10] On the contrary, a study conducted in urban areas of Puducherry found the prevalence of SM to be very low (11.9%).^[8] High prevalence of 55% and 68% were found in studies conducted by Marak *et al.* in Meghalaya^[7] and in Maharashtra by Vargese *et al.*,^[11] respectively. Very high prevalence (78.6%) was found in a study conducted among medical students in South India,^[12]

Table 2: Distribution of study subjects according to the predominant class of drugs used for self-medication (n=88)

Drug class	Frequency (%)
Antipyretics	22 (25.0)
Analgesics	28 (31.8)
Antiemetics	4 (4.5)
Antacids	18 (20.5)
Antihistaminic	4 (4.5)
Antidiarrheal	2 (2.3)
OCPs	2 (2.3)
Homeopathic medicine	2 (2.3)
Antidepressants	1 (1.1)
Multivitamins	2 (2.3)
Antibiotics	3 (3.4)
OCPs: Oral contraceptive pills	

Table 3: Association between background characteristics of the study subjects and self-medication practices (n=180)

Background characteristics	Total, n (%)	Self-medication		Statistical test	
		Yes, n (%)	No, n (%)	χ^2 (df)	P
Age (years)					
≤36	93 (51.6)	59 (63.4)	34 (36.5)	1.836 (1)	0.024*
>36	87 (48.3)	39 (44.8)	48 (55.1)		
Gender					
Male	57 (31.7)	25 (43.8)	32 (56.1)	0.424 (1)	0.844
Female	123 (68.3)	63 (51.2)	60 (48.7)		
Education					
Illiterate	63 (35.0)	32 (50.8)	31 (49.2)	0.708 (1)	0.756
Literate	117 (65.0)	56 (47.9)	61 (52.1)		
Occupation					
Employed	87 (48.3)	43 (49.4)	44 (50.6)	0.889 (1)	1.000
Unemployed	93 (51.7)	45 (48.4)	48 (51.6)		
Income (Rs.)					
<10,000	146 (81.1)	69 (47.3)	77 (52.7)	0.378 (1)	0.004*
≥10,000	34 (18.9)	19 (55.9)	15 (44.1)		
Comorbidities**					
None	149 (82.8)	75 (50.3)	74 (49.7)	0.445 (1)	0.002*
Present	31 (17.2)	23 (74.1)	8 (25.8)		

*P<0.05 (significant), **Comorbidities=Diabetes mellitus, hypertension, hypothyroidism

New Delhi with study in two phases giving a prevalence of 74.6% and 69.4%^[13] and also among adolescents in South Karnataka,^[14] where the prevalence was 78.6%. All these variations were due to different study settings, sample populations, and sample sizes.

In this study, the majority of the study subjects who practiced SM had complaints of body pain for which they self-medicated (35.2%), followed by headache (20.5%) and fever (18.2%). Cough and common cold (28.3%) were the most common symptoms in the study conducted in Meghalaya^[7] whereas fever (31%), headache (19%), and abdominal pain (16.7%) were the most common symptoms in the Puducherry study.^[8] Sore throat (25%) was the major symptom in the study conducted in the urban slum of Udupi, Karnataka.^[13]

As far as reasons of SM are concerned, most of the study participants (29.5%) found SM to be an easy and convenient method to relieve their symptoms, similar to a study in Gujarat by Parmar *et al.*^[15] Study conducted in the urban area of Maharashtra^[16] revealed 58.8% of the respondents reported that the illness was not so serious to be needing a visit to the doctor and 41.2% reported that there was a lack of time.

The main source of procurement of drugs used for SM was from the nearby pharmacy (89.7%) in our study which was similar to the findings of the study in Maharashtra.^[16,17]

In this study, an association between sociodemographic characteristics and SM behavior revealed that study subjects aged <36 years, had significantly higher percentages of self-medicators compared to the ones more than 36 years. Similarly, study subjects having low monthly income and with no comorbidities were practicing SM more than their counterparts. On the contrary, a study conducted among urban slum dwellers in Karnataka revealed that factors such as gender, recent illness history, and stocking medications at home were highly associated with SM practice.^[13] A study carried out in urban Udupi revealed that SM ($P < 0.05$) was associated with factors such as age group, marital status, education, occupation, and socioeconomic status.^[11]

Limitations

The results of the study should be deciphered, keeping in mind, the limited generalizability of the study as the study was conducted in only 15 slums under the Burdwan Municipality, out of 144 slums. Furthermore, many other factors related to SM could not be accessed owing to the lack of feasibility of the researcher. The drugs and health conditions of the respondents were not verified systematically during data collection.

Conclusion

According to this study, it was found that the prevalence of SM was 48.9% wherein a majority of the study subjects found SM to be an easier and more convenient way to relieve their symptoms and many believed that they practiced SM only for "minor" illnesses. Analgesics and antipyretics were

most commonly used, with very few using antibiotics. Most of these drugs were obtained from the pharmacy by narrating the symptoms to the pharmacists wherein the information regarding the dosage of the drugs was communicated, but no details about the side effects or contraindications of the drugs were informed to the consumer, leaving them unaware of the harmful effects of SM. This study also reflects upon the vulnerability of the participating study population who resorted to SM as a faster and easier way to resolve their symptoms and avoid going to the physicians. With the high prevalence of SM, having the correct knowledge and encouraging responsible usage of the drugs are important to help people to avoid future untoward consequences. Many reportedly stored these medicines at home for emergency/future uses which could mask the symptoms of a chronic underlying health condition that could go undetected for years. Similar studies should be conducted in different settings, at the community level, with a larger study population to get more data on the several medicines used for SM. Pharmacists should be educated about the side effects and contraindications of the drugs so the general population can practice safe SM. Public health programs should be introduced for the people living in slums to create cautiousness about SM, discourage harmful practices, decrease the availability of potentially harmful drugs, and check the prescription dates before handing out the medicine. Strict legislative actions should be taken to prevent the selling of drugs without a prescription. Although considered a form of self-care, practicing SM could be detrimental to health in the long run, and hence, obtaining the correct information regarding the drugs from health-care workers should be advocated instead of relying on unreliable sources for information to avoid undesirable effects.

Information derived from this study might help to strategize plans and interventions regarding harmful SM practices. Prevalence of SM practices was identified with the help of this study so that proper health campaigns and awareness drives can be conducted to encourage people to gain correct and suitable knowledge about the drugs that are safe for them, while also discouraging unsupervised SM and informing them about the adverse effects and contraindications if required. The focus of health policies should be on guaranteeing that individuals have sufficient access to health care and that the populace receives information regarding the possible short-term and long-term harmful effects that could follow after SM.

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Conflicts of interest

There are no conflicts of interest.

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