Buying Behavior of Scheduled Drugs as OTC Drugs: An Empirical Investigation

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Abstract

Over a period of time, there has been a steady growth of "self - medication" due to various factors. This has happened in spite of the fact that the perils of this unsupervised and unregulated "self medication" are far and wide. Medicines in India are regulated by CDSCO -Central Drugs Standard Control Organization, under the Ministry of Health and Family Welfare. Drugs are classified under the following schedules :

1. Schedule X drugs – consists of narcotics,
2. Schedule H and L – consists of injectables, antibiotics, and antibacterial,
3. Schedule C and C1 – biological products-like serums and vaccines.

Schedule H is a class of prescription drugs in India appearing as an Appendix to the Drugs and Cosmetics Rules introduced in 1945. It is revised from time to time based on the advice of the Drugs Technical Advisory Board, part of the Central Drugs Standard Control Organization. However, enforcement of Schedule H laws in India is lax, compared to the more restrictive Schedule X, for which a documentation trail has to be mandatorily maintained. The present study looked into the prevalence of buying of some of the schedule H and L drugs without a prescription (self - medication). It throws light on how and why the line of distinction between "over the counter" OTC drugs and schedule H drugs is not observed in a strict manner.

Keywords: **self - medication, schedule H drugs, regulations**

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The World Health Organization defines health as the state of complete physical, mental, and social well-being and not merely the absence of diseases or infirmity (World Health Organization, n.d.). A rather interesting aspect of this definition is that it has not been amended since 1948. To maintain good health, individuals make many decisions and take actions accordingly. But this decision making behaviour of individuals with respect to various health conditions that one comes across is influenced and shaped by a myriad of factors. As a result, it has become a matter of attention for academics, research scholars, health professionals, and marketers to understand the buying behaviour of a pharmaceutical consumer. The paper is an attempt at describing some of the issues and factors pertaining to the behaviour of self-medication. That is, the sale of a majority of schedule H drugs either without a prescription at all or against an invalid or expired prescription.

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Literature Review

The technical nature of pharmaceutical products, legal restrictions on pharmaceutical marketing, and the need for specialized knowledge has meant that the research on pharmaceutical consumer behaviour has been limited. The available research looks at the subject more from a medical/ paramedical perspective than from a commercial perspective. However, a recent surge in the health care industry, that has been a bellwether of the knowledge based industry along with ITES, and related economics has kindled the interest of researchers in this area. The current gamut of accessible work includes that of economists, medical professionals, policy experts, paramedical professionals, and management experts.

According to Greenhalgh (1987), potentially dangerous drugs are sold over the counter in India. Sharma, Verma, Sharma, and Kapoor (2005), while examining the drug usage patterns among pregnant women, found wide prevalence of self-medication, though awareness levels were also high. The incidence of self-medication was found to be higher among educated women. Kumar, Mangal, Yadav, Raut, and Singh (2015), while examining the self-medication pattern in Delhi, found it to be high (92.8%). The high prevalence might be due to the fact that the study included all systems of medicine, that is, Allopathy, Homeopathy, Ayurveda, Sidha, and Unani, and all types of medicines whether scheduled or non-scheduled. The study also looked at the instance of self-medication at the family level. A study by Lal, Goswami, and Anand (2005), among the same population, found self-medication to be much lower at 31.3%.

In a study of self-medication among rural residents, Ahmad, Patel, Mohanta, and Balkrishnan (2014) found the prevalence to be 50%. Here, again, all systems and schedule of medicines were included in the study. All of these studies were done in a household setting and not at the point of purchase. Most managerial studies on pharmaceutical marketing have looked at the subjects from the customer's point of view. They examined the impact of promotion on the prescription pattern of doctors (Arora & Taneja, 2006; Kasliwal & Bansal, 2013). This is possible due to the fact that there is a clear demarcation of 'customer' and 'consumer' for the product, and the promotions are targeted only at the customer, who becomes the source of influence and information for the 'consumer,' who is the patient. The studies, on consumers, either are restricted to awareness levels (Burlakanti & Srinivas, 2013) or on self-medication.

There is a dearth of research on the purchase of scheduled drugs over the counter across the country. The current study tries to bridge the gap by studying the purchase behaviour of scheduled allopathic drugs for consumption without a valid prescription. It does not cover alternate systems of medicines like Ayurveda or Homeopathy and excludes non scheduled drugs that are commonly advertised and sold over the counter.

↳ **Over the Counter (OTC) Drugs :** It is common for individuals to seek, at times, wellness without the assistance of a qualified medical professional for various reasons. The practice is prevalent the world over, irrespective of knowledge levels, income levels, and availability & access to health care. According to World Self-Medication Industry (World Self Medication Industry (WSMI), (n.d. b)), self medication serves many purposes. It reduces the cost of medical care, reduces the load on the healthcare system, and brings faster relief to the patients. WSMI defines self-medication as "treatment of common health problems with medicines especially designed and labelled for use without medical supervision and approved as safe and effective for such use" (World Self Medication Industry (WSMI), (n.d. a), p. 8.).

The prevalence of self medication in India is common and runs deep among all sections of the society (Greenhalgh, 1987 ; Kumar et al., 2015; Lal et al., 2007 ; Sharma et al., 2005). However, the problem in India is different in that, there is no list of approved over the counter (OTC) drugs for such treatment and in such a case, most of the self-medication ends up as treating oneself with prescription drugs (drugs to be used with medical assistance) sold over the counter. Medicines for self-medication are often called 'non-prescription' or more commonly, 'over the counter' (OTC) drugs and are available without a doctor's prescription through pharmacies. In some countries, OTC products are also available in supermarkets and other outlets. Medicines that require a doctor's prescription are called prescription drugs and are sold through pharmacies across the world.

In India, the import, manufacture, distribution, and sale of drugs and cosmetics are regulated by the Drugs and Cosmetics Act, 1940 (DCA), the Drugs and Cosmetics Rules, 1945 (DCR). The phrase "OTC" has no legal recognition in India; all the drugs not included in the list of "prescription-only drugs" are considered to be non-prescription drugs (or OTC drugs). Hence, "OTC drugs" mean drugs legally allowed to be sold "over the counter" by pharmacists, that is, without the prescription of a registered medical practitioner.

Prescription-only drugs are those medicines that are listed in Schedules H and X of the Drug and Cosmetics Rules. Drugs listed in Schedule G (mostly antihistamines) do not need a prescription to purchase, but require the following mandatory text on the label: "Caution: It is dangerous to take this preparation except under medical supervision". Currently, non drug-licensed stores (e.g. non-pharmacists) can sell a few medicines classified as "Household Remedies" listed in Schedule K of the D&C Rules in villages whose population is below 1000 people, subject to certain other conditions.

Legislations and Regulations : According to the Indian Pharmaceutical Association (IPA), there are a slew of legislations that regulate the pharmaceutical business in India (Indian Pharmaceutical Association., n.d.). Some of the major legislations for pharmaceutical regulation are the Drugs and Cosmetics Act, 1940 (DCA) and its subordinate legislation, the Drugs and Cosmetics Rules, 1945 (DCR). Drug (Prices Control) Order, 1995, Drugs (Magic Remedies) Objectionable Advertisement Act, 1954, and Pharmacy Act, 1948 are other regulations which have a bearing on the pharmaceutical business in India. The legislations apply to the whole of India and to all categories of medicines (e.g., Allopathic, Ayurvedic, Siddha, Unani and Homeopathy), whether imported or manufactured in India. The legislation is regulated by the Central government (Ministry of Health & Family Welfare, http://www.mohfw.nic.in/) in New Delhi, which is responsible for its overall supervision, and is enforced by the State governments through the Food and Drug Administration (FDA).

The Drug & Magic Remedies (Objectionable Advertisement) Act & Rules (The Drugs & Magic Remedies (Objectionable Advertisement) Act, 1954) mentions a list of ailments for which no advertising is permitted. It also prohibits false or misleading advertisements which, directly or indirectly give false impressions regarding the true character of the drug, make false claims, or are otherwise false or misleading in any particular respect. According to the OPPI (Organization of Pharmaceutical Producers of India) Code of Pharmaceutical Marketing Practices, (2012) based on the IFPMA (International Federation of Pharmaceutical Manufacturers and Associations) code, currently, there is no specific law which prohibits the advertising of prescription drugs. The following medicine advertisements can be seen on TV in India: digestives, antacids, anti-flatulent, cold rubs and analgesic balms/creams, vitamins/tonics/health supplements (especially herbal and Ayurvedic-registered), medicated skin treatment, analgesic /cold tablets, antiseptic creams/liquids, glucose powders, cough liquids, throat lozenges, medicated dressings (band-aids), baby gripe water, Ayurvedic medicines and preparations.

In 1995, the WHO Expert Committee on National Drug policies stated:

> Self-medication is widely practiced in both developed and developing countries. Medications may be approved as being safe for self-medication by the national drug regulatory authority. Such medicines are normally used for the prevention or treatment of minor ailments or symptoms, which do not justify medical consultation. In some chronic or recurring illnesses, after initial diagnosis and prescription, self-medication is possible with the doctor retaining an advisory role. (WHO, 1995, p. 49)

Legal Issues in Self - Medication : As per the drug law in India, self medication is permitted for OTC drugs, but paradoxically, there is no specific list of OTC drugs. The list of OTC drugs is obtained through the exclusion method, which means that the drugs which are not in Schedule H or G are OTC. These medicines can be procured without the prescription of a registered medical practitioner and can be used as self - medication. In short, there are no "pharmacist only" medicines. Moreover, the situation is more complex as a number of prescription only medicines are used in self - medication and are easily available through pharmacies without any prescription (Jain, Sachan, Singla, & Agrawal, 2012).

Methodology

Coverage : The study was conducted in the Ghaziabad area falling under the National Capital Region (NCR) during the months of June and July 2014. It was conducted at five privately owned and run pharmacy shops not attached to any health care institutions. The data were collected by the administration of a questionnaire to the customers visiting the shops. The owners were not forthcoming with the turnover figures. All the shops were licensed medical shops, but also sold a wide variety of other items like alternate medicines, surgical equipments, personal care items, cosmetics, and so forth. As per the owners, sixty percent (60%) of the turnover was contributed by non medicine sales. They had an average stock level of 20 days sales with the sales - turnover ratio of 18 approximately. The average credit period varied and was approximated to 45 days. Of the total paid up stock, 80% were consumer goods and only 20% were medicines. They had, on an average, two fridges. Four of the shops were air-conditioned, but air-conditioning was not actively in use. Although the area where the study was conducted is predominantly urban, with the majority of the population being literate and employed, the pharmacy shops, nursing homes, and hospitals in the area were frequently visited by people from the nearby villages and other small towns.

Research Design

Sampling : The sample selection was through 'field interception'. Of the total 239 drug sales observed and intercepted during the survey, 145 sales were without a valid prescription (61%). All the 145 customers, without valid prescriptions, were requested to participate in the survey. However, only 129 customers participated in the survey by answering the questions (response rate of 89%). The survey was administered by the pharmacist/ pharmacy in charge during their work hours for the two days of the survey. Of the pharmacist/ pharmacy in charge, only two were qualified pharmacists, the others considered themselves as 'industry veterans'. Their work hours were significantly lower than 8 hours as they also ran errands like bank transactions, wholesaler visits, and so forth.

Exclusion Criteria:

(1) Paramedic,
(2) Nurse,
(3) Pharmacists,
(4) Consumers with valid prescription,
(5) Respondents/ buyers below the age of 18 years (the respondent/ buyer is the person who was buying the medicines. The respondent need not be the consumer as in when the patient himself/herself did not come to buy the medicines. For analysis purpose, the consumer data is only considered).

Data Collection and Analysis : The study used a structured interview questionnaire as the data collection instrument. The survey was administered by the pharmacist/ pharmacy in charge during their work hours. All the data collectors had been given the orientation about the overall idea of the project, and particularly on how to approach and request the respondents to be a part of the survey and explain its importance. The objectives of the study, confidentiality of the research, and other ethical considerations were communicated to every interviewee. Every respondent was asked for his or her willingness to participate in the study (Cooper & Schindler, 2011). The data collation and subsequent analysis were done using SPSS version 16.0.

Validity Criteria for Prescriptions : A prescription was considered valid if the course of medicine bought was still not over as per the prescription. For example, a 10-day prescription of drug 'x' written on 01/01/2014 was

considered valid till 11/01/2014. The survey was conducted on non-valid prescriptions as the sales were over the counter with no legal validity if the drug was classified as schedule H, L, or X.

↳ **Drug Class :** The class of drug considered maximum of only 2 drugs based on the value, that is, the highest two values in the prescription were only considered. There were many instances where multiple drugs of the same class were bought like two anti diabetic agents or anti hypertensive agents. In such cases, all the drugs were considered under the first class of the drug. The second class was considered as any separate class of drug prescribed, else, it was considered 'nil'.

Results and Discussion

Demographic Profile

The demographic profile is represented by age, gender, and the employment profile reflecting the socioeconomic status of the respondents. Out of the total 129 respondents, 79 (61%) were men and 50 (39%) were women (Table 1). While studying the self-medication patterns in Haryana, Jain et al. (2012) found similar prevalence of self-medication among the genders (35.6% among women and 64.4% among men). With respect to age, 29 consumers were aged 18 years or below, 44 respondents were in the age group of 19-59 years, and 56 consumers were aged 60 years or above (Table 2). The third dimension along which the demographic profiling for the respondents is done is the sector of employment ; 13 respondents were employed in the unorganized sector and 53 respondents were employed in the organized sector ; 22 respondents were either professionals or engaged in business; and the remaining 41 were either unemployed or retired (Table 3).

Table 1. Cross Tabulation of Consumers' Gender vs. Age of Prescription

		Age of the Prescription					Total
		Not based on prescription	Less than 6 months old	6-12 months old	More than 12 months old	Don't know/ remember	
Consumers' Gender	Male	18	18	16	22	5	79
		23%	23%	20%	28%	6%	100%
	Female	6	20	10	11	3	50
		12%	40%	20%	22%	6%	100%
Total		24	38	26	33	8	129
		19%	29%	20%	26%	6%	100%

Table 2. Cross Tabulation of Consumers' Age vs. Age of Prescription

		Age of the Prescription					Total
		Not based on Prescription	Less than 6 months old	6-12 months old	More than 12 months old	Don't know/ remember	
Consumers' Age	18 yrs and below	10	12	5	0	2	29
		34%	41%	17%	0%	7%	100.0%
	19-59 yrs	10	11	9	13	1	44
		23%	25%	20%	30%	2%	100.0%
	60 and above yrs	4	15	12	20	5	56
		7%	27%	21%	36%	9%	100.0%
Total		24	38	26	33	8	129
		19%	29%	20%	26%	6%	100.0%

Table 3. Cross Tabulation of Profession of the Consumers vs. Age of Prescription

		Age of the Prescription					Total
		Not based on prescription	Less than 6 months old	6-12 months old	More than 12 months old	Don't know/ remember	
Profession of	Unorganized	8	2	0	1	2	13
the Consumer		62%	15%	0%	8%	15%	100%
	Organized	6	16	14	14	3	53
		11%	30%	26%	26%	6%	100%
	Professional and Business	3	9	4	6	0	22
		14%	41%	18%	27%	0%	100%
	Unemployed & Retired	7	11	8	12	3	41
		17%	27%	20%	29%	7%	100%
Total		24	38	26	33	8	129
		19%	29%	20%	26%	6%	100%

Behavioural Profile of OTC Purchases

(1) Purchase and Consumption of Drugs Without a Valid Prescription (Tables 1-3) : Thirty-four percent (34%) of the drug consumers who were 18 years or younger did not have a prescription at all, and the rest were invalid. Strikingly, 93% of the consumers who were 60 years and above had prescriptions that were invalid, and 7% had no prescription at all. Seventy seven percent (77%) of the male consumers did not have a valid prescription, and the remaining 23% did not have a prescription at all. The corresponding figures for female consumers are 88% and 12%.

The incidence of prescription less self-medication was significantly more among the unorganized sector employees ; 62% of the consumers working in the unorganized sector did not have prescriptions. This reflects the lack of awareness and the inability of getting a consultation from the doctors among this segment. For the rest of the consumers, 89% of those working in the organized sector, 86% of those working as professionals, and 83% of the unemployed/retired people had invalid prescriptions and the incidence of prescription less self-medication was low among them. This points to the fact that even if the consumer is well-educated and works and lives in better conditions, he/she is not visiting the doctors to get his/her prescription reviewed or renewed. Various reasons can be ascribed to such a behavior as shown in the later sections of this paper.

(2) Knowledge of the Side Effects of Self - Medication or Consuming Drugs Against an Invalid Prescription (Tables 4 - 5) : Eighty six percent (86%) of the respondents had the knowledge about the side effects or perils

Table 4. Cross Tabulation of Consumers' Gender vs. Knowledge of Side Effects Arising from Self-Medication

		Knowledge about Side Effects Arising From Self-medication		Total
		Yes	No	
Consumers'	Male	65	14	79
Gender		82%	18%	100%
	Female	46	4	50
		92%	8%	100%
Total		111	18	129
		86%	14%	100%

Table 5. Cross Tabulation of Profession of the Consumer vs. Knowledge of Side Effects Arising from Self-Medication

		Knowledge about Side Effects Arising from Self-medication		Total
		Yes	No	
Profession of the Consumer	Unorganized	4	9	13
		31%	69%	100%
	Organized	49	4	53
		92%	8%	100%
	Professional and Business	21	1	22
		95%	5%	100%
	Unemployed & Retired	37	4	41
		90%	10%	100%
Total		111	18	129
		86%	14%	100%

Table 6. Cross Tabulation of Consumers' Age vs. Reasons for not Consulting a RMP for Prescription

	Reasons for not Consulting a RMP for Prescription				Total
	Lack of time or inconvenience	Comfort with existing medication	Fear of being over medicated/ over tested/ lack of confidence	Economic conditions	
Total	26	48	28	27	129
	20%	37%	22%	21%	100%

Table 7. Cross Tabulation of Consumers' Gender vs. Reasons for not Consulting a RMP for Prescription

		Reasons for not Consulting a RMP for Prescription				Total
		Lack of time or inconvenience	Comfort with existing medication	Fear of being over medicated/ over tested/ lack of confidence	Economic conditions	
Consumers' Gender	Male	12	30	20	17	79
		15%	38%	25%	22%	100%
	Female	14	18	8	10	50
		28%	36%	16%	20%	100%
Total		26	48	28	27	129
		20%	37%	22%	21%	100%

arising from self-medication and consuming drugs against an invalid prescription. However, their behavior of buying drugs in the absence of valid prescriptions was observed irrespective of their knowledge of the side effects. The knowledge of side effects of self-medication was better amongst the women respondents (92% among females vs 82% among males).

Sixty nine percent (69%) of the people working in the unorganized sector were unaware ; whereas, more than 90% of the respondents working in the organized sector, professionals, and retired people were aware that consuming drugs without a valid prescription might have some kind of a side effect. It is evident that awareness about the harmful effects of consuming drugs without a valid prescription did not act as a deterrent for OTC drug purchase behavior. In a similar study conducted by Selvaraj, Kumar, and Ramalingam (2014), 90% of the self medicators expressed their intent to continue with the practice.

Table 8. Cross Tabulation of Profession of the Buyer vs. Reasons for Not Consulting a RMP for Prescription

		Reasons for Not Consulting a RMP for Prescription				Total
		Lack of time or inconvenience	Comfort with existing medication	Fear of being over medicated/ over tested/ lack of confidence	Economic conditions	
Profession of	Unorganized	0	0	4	9	13
the buyer		0%	0%	31%	69%	100%
	Organized	14	21	10	8	53
		26%	40%	19%	15%	100%
	Professional	4	14	4	0	22
	and business	18%	64%	18%	0%	100%
	unemployed	8	13	10	10	41
	& retired	20%	32%	24%	24%	100%
Total		26	48	28	27	129
		20%	37%	22%	21%	100%

Table 9. Cross Tabulation of Type of Formulation vs Age of the Prescriptions

		Age of the prescription					Total
		Not based on prescription	Less than 6 months	6-12 months	More than 12 months	Don't know/ remember	
Type of the	Tablets	11	24	20	25	4	84
formulation		13.1%	28.6%	23.8%	29.8%	4.8%	100.0%
of the	Liquids/ other	7	7	1	2	1	18
1st type	oral preparations	38.9%	38.9%	5.6%	11.1%	5.6%	100.0%
of Drugs	Injectables	0	1	2	3	2	8
		.0%	12.5%	25.0%	37.5%	25.0%	100.0%
	Topical Preparations	5	6	2	0	0	13
		38.5%	46.2%	15.4%	.0%	.0%	100.0%
	Others	1	0	1	3	1	6
		16.7%	.0%	16.7%	50.0%	16.7%	100.0%
Total		24	38	26	33	8	129
		18.6%	29.5%	20.2%	25.6%	6.2%	100.0%

(3) Reasons for Consumption of Drugs Without a Prescription or Without a Valid Prescription (Tables 6 - 8) : Thirty seven (37%) of the consumers cited comfort with the existing medication as the main reason for not consulting a registered medical professional for getting drugs prescribed or getting an existing prescription renewed. All the other reasons for self-medication,that is, inconvenience/ lack of time, fear of being over medicated/ lack of confidence, and economic conditions contributed equally to self-medication.

Among both genders, comfort with the existing medication remained the largest reason for not consulting a doctor (36% among females and 38% among males). The next important reason among women, for non consultation, was 'lack of time' (28%) and among men, 'fear of over medication' (25%) was the next important reason. Economic cause as a reason for non consultation was similar among both the genders at 20% each.

Sixty nine (69%) of the respondents working in the unorganized sector cited their economic condition for not consulting a registered medical professional for getting drugs prescribed or getting an existing prescription

Table 10. Cross Tabulation of Class of Drugs vs. Age of Prescription

		Age of the prescription					Total
		Not based on prescription	Less than 6 months	6-12 months	More than 12 months	Don't know/ remember	
Class of	Antipyretics/	6	1	1	0	0	8
Drugs -	analgesics/ musculoskeletal	75%	13%	13%	0%	0%	100%
1st	Cardiovascular drugs like anti-hypertensives,	0	5	7	11	0	23
	anti-cholestrol, blood thinners	0%	22%	30%	48%	0%	100%
	Metabolic drugs like anti diabetics, weight	0	9	9	14	4	36
	control agents, thyroid preparation	0%	25%	25%	39%	11%	100%
	Anti microbial: Antibiotics, antifungals	5	14	7	0	0	26
		19%	54%	27%	0%	0%	100%
	Gastroenterologicals like anti-ulcerants,	6	3	1	3	2	15
	digestives, antacids, laxatives, antiemetics	40%	20%	7%	20%	13%	100%
	Supplements like vitamins,	1	0	0	0	0	1
	minerals, hepatic stimulants	100%	0%	0%	0%	0%	100%
	Cough syrups: Anti-tussive, expectorants,	6	6	1	2	0	15
	bronchodilators, mucolytics	40%	40%	7%	13%	0%	100%
	Anti - allergics and steroids	0	0	0	1	2	3
		0%	0%	0%	33%	67%	100%
	Others include classified not elsewhere	0	0	0	2	0	2
	like serologicals, neuropsychiatry	0%	0%	0%	100%	0%	100%
Total		24	38	26	33	8	129
		19%	29%	20%	26%	6%	100%

renewed. Among people working in the organized sector and as professionals, comfort with the existing drugs was the main reason (40% and 64%, respectively). However, lack of time was the second biggest reason stated by both the groups, which was associated with a hectic lifestyle pattern they usually followed.

(4) Type of Formulation of the Drugs Sold Without a Prescription or Without a Valid Prescription (Table 9) : Sixty five percent (65%) (84 out of 129) of the total drugs sold without a prescription or a valid prescription were in the form of tablets, 14% were liquid and other oral preparations, 10% were topical preparations which included ointments and lotions. Rest of the 10% consisted of injectables and other formulations like inhalers and injectables ; 38.9% of the other oral preparations and 38.5% of the topical preparations were not based on prescriptions and the rest were based on invalid prescriptions. For tablets, the non prescription based buying and usage was 13.1% and the rest was based on invalid prescriptions.

(5) Class of Drug Bought Without a Prescription or Without a Valid Prescription (Tables 10 - 11) : Sixty two percent (62%) of all the OTC purchases had multiple drugs in different classes. The survey studied the first two classes of drugs only, though some purchases had more than two classes of drugs being bought. The remaining 38% had only one class of drug being bought without a valid prescription. The first class of drug was dominated by metabolic and cardiovascular drugs (36 and 23 out of 129, respectively). An earlier study by Kumar et al. (2015) found the usage of antibiotics in self - medication to be high at 23.7%. This result is in line with current study, where the corresponding figure is 20.1%. This was followed by cough and cold preparations and gastroenterologicals (15 each out of 129). All the chronic medication preparations bought OTC were bought on

Table 11. Cross Tabulation of Class of Drug - 2nd vs Age of Prescription

		Age of the prescription					Total
		Not based on prescription	Less than 6 months	6-12 months	More than 12 months	Don't know/ remember	
Class of	Antipyretics/ analgesics/	0	0	1	2	10	13
Drugs - 2nd	musculoskeletal	0%	0%	7.7%	15.4%	76.9%	100%
	Cardiovasculars like anti-hypertensives,	1	0	0	0	12	13
	anti-cholestrol, blood thinners	7.7%	0%	0%	0%	92.0%	100%
	Metabolic drugs like anti diabetics, weight	1	0	0	0	12	13
	control agents, thyroid preparation	7.7%	0%	0%	0%	92.0%	100%
	Anti microbial: Antibiotics, antifungals	1	0	0	1	0	2
		50%	0%	0%	50%	0%	100%
	Gastroenterologicals like anti-ulcerants,	0	0	0	0	0	0
	digestives, antacids, laxatives, anti-emitics	0%	0%	0%	0%	0%	0%
	Supplements like vitamins,	0	0	1	4	27	32
	minerals, hepatic stimulants	0%	0%	3.1%	12.5%	84.4%	100%
	Cough syrups: Anti-tussive, expectorants,	1	0	0	0	4	5
	bronchodilators, mucolytics	20%	0%	0%	0%	80%	100%
	Anti - allergics and steroids	0	0	1	0	0	1
		0%	0%	100%	0%	0%	100%
	Others include classified not elsewhere	0	0	0	0	1	1
	like serologicals, neuropsychiatry	0%	0%	0%	0%	100%	100%
	No second drug	N.A	N.A	N.A	N.A	N.A	49
		N.A	N.A	N.A	N.A	N.A	100%
	Total	24	38	26	33	8	129
		19%	29%	20%	26%	6%	100%

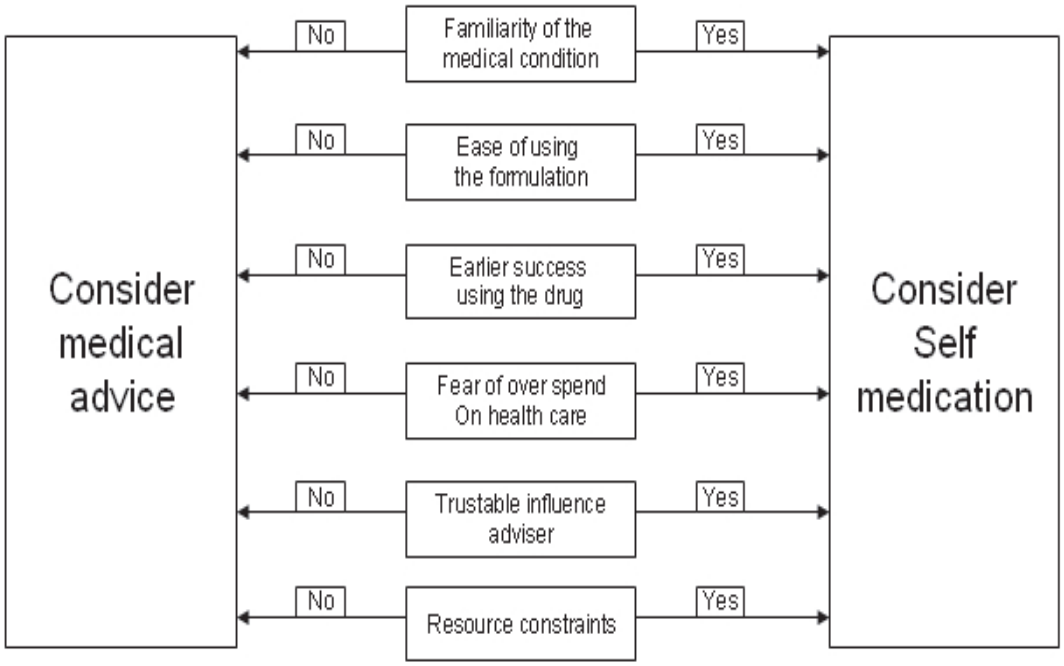
Table 12. Cross Tabulation of Prescription Less Purchase vs. Influencer

	Who suggested the medication				Total
	Family member	Friend/ acquaintance	Literature	Pharmacist	
Not based on prescription	6	1	6	11	24
	25%	4.2%	25%	45.8%	100%

prescriptions, but these prescriptions were invalid. Almost half of the purchases for chronic medications were based on prescriptions that were more than 1 year old (48% for metabolic and 39% for cardiovascular drugs). The purchase of antipyretics, cough & cold, and gastroenterologicals without a prescription was 75%, 40%, and 40% , respectively. The 2nd drug purchased OTC was dominated by vitamins and supplements (40% of the total second purchase), an indication of the same being bought as an adjuvant to the first purchase. All the purchases of supplements, as a second drug, were without valid prescriptions, and in 84% of the instances, the consumers were unable to recall the exact dates of the purchase. Antipyretics, cardiovascular, and metabolic drugs contributed 19% each to the second class of drugs purchased OTC (13 each out of the total 80 second class of drugs purchased OTC).

(6) Influencers of OTC Purchases (Table 12) : There were a total of 24 purchases that were totally made without a prescription. The prescriptions were based on various kinds of influences. The most important of the influencers

Figure 1. Factors Influencing OTC Buying Behaviour of Drugs



was the pharmacist (45.8%), followed by family members and literatures that the purchasers had read (25% each). According to Kumar et al. (2015), past experience with a medication (38.8%) and pharmacist (29.6%) was reported to be the main information source on drugs while self - medicating. However, Jain et al. (2012) found that the pharmacists were the source of information only in 15% of the self - medication instances. According to the authors, the medical and paramedical staff, other than the pharmacists, were the source of information for self-medication 39% of the times.

↳ **OTC Purchase Behaviour :** Buyer behaviour is influenced by various personal and environmental factors (Banes, Fill, & Page, 2013 ; Kotler, Keller, Koshy, & Jha, 2013). The OTC purchase behaviour of the health seeker seems to be influenced by various factors. The familiarity of the situation (through self or others) propels the patient to go in for self - medication. If the patient is familiar with the situation and considers it manageable, he/ she may not seek medical help and resort to self- medication. The more common the formulation type is like tablets, topical applications, or syrups, the patient may be propelled towards self - medication. If the patient has already used the medicine for an illness, and found it to be successful, any repeat situation may see self - medication. The fear of over medication and over testing seems to propel the patients to avoid medical advice and seek self - medication. In case a trustable adviser or influencer is available, the patient may move towards self- medication. There seems to be no great influence of demographic factors on self-medication. The self - medicating behaviour of the consumers is depicted in the Figure 1.

Recommendations

Self- medication seems to be unavoidable in a developing country like India, where there is a huge mismatch between the population of patients and the number of health care workers and providers, specifically, registered medical practitioners. However, great caution and attention needs to be exercised while consumers buy drugs for self-medication or buy drugs with an invalid or expired prescription. Particular attention needs to be paid when the

consumers of such drugs are pregnant or lactating women, children, elderly, or chronically ill people.

People working as pharmacists need to live up to the standards while dispensing drugs. They should educate and counsel patients about drug use, especially those patients who tend to self - medicate. With no strict rules to guide the sale of drugs without prescriptions or with invalid prescriptions, it becomes a matter of compliance where awareness regarding the perils of self-medication needs to be highlighted and raised.

Conclusion

The study shows that self-medication is widely practiced in the areas of Ghaziabad, where this study was conducted. It was observed that despite being aware of the ill effects of consuming prescription-only drugs without a prescription or invalid prescription, respondents were still buying and consuming drugs. The first and second most frequently bought drugs (refer to the Appendix questionnaire) were from the class of antipyretics/analgesics and gastroenterological drugs. The most frequent reasons cited for not getting a prescription or not getting an existing prescription renewed by a registered medical practitioner were economic for people employed in the unorganized sectors, and comfort with existing drugs for people employed in the other sectors.

Managerial Implications

Self - medication has been one of the main culprits in the birth of 'superbugs' that are resistant to multiple drugs (MDR pathogens). This has resulted in increased morbidity, mortality, and health care costs, which are undesirable for a developing economy like India. It is imperative that policy makers develop suitable strategies to counter the menace of rampant self-medication that is currently prevalent. The findings of the study can be helpful to the policy makers to develop suitable strategies and target the right people to reduce the incidence of self-medication.

Limitations of the Study and Scope for Further Research

The study was limited to the NCR region and thus, the generalizability of the findings may not be possible. As the demographic, social, and cultural profile varies widely, the OTC buying behaviour may also vary. Though the consumer behaviour may be ideographic in this context, the fact that self-medication exists can be considered nomothetic for further research.

The current study has a restricted geographical and demographic coverage. Further research across the country is needed for a deeper understanding of the menace of self-medication. It can be reasonably argued that the results may differ across geographies due to the difference in the health care infrastructure and awareness among the customers. Additional demographic factors like education, income levels, and so forth can be included in future research for a better understanding of the self - medication phenomenon.

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Appendix

Questionnaire

[1] Age of the consumer: Age in years of the person consuming the medicine

[2] Gender of the consumer: Whether the actual consumer is a male or a female

[3] Profession of the buyer

1. Unorganized sector like labour,
2. Organized like private firms, government, etc,
3. Professionals &businessmen.
4. Unemployed/ Retired

[4] Formulation - the type of drug bought (1st drug)

1. Tablets
2. Liquid/ oral preparation
3. Injectables
4. Topical preparations

[5] Others include inhalers/ suppositories…

5. Class of Drugs – 1st

1. Antipyretics/ analgesics/ musculoskeletal,
2. Cardiovasculars like anti-hypertensives, anti-cholestrol, blood thinners, etc,
3. Metabolic drugs like anti diabetics, weight control agents, thyroid preparation etc,
4. Anti microbial: Antibiotics, antifungals,
5. Gastroenterologicals like anti-ulcerants, digestives, antacids, laxatives, anti-emitics etc,
6. Supplements like vitamins, minerals, hepatic stimulants, etc,
7. Cough syrups: Anti-tussive, expectorants, bronchodilators, mucolytics etc,
8. Anti – allergic and steroids,
9. Others include classified not elsewhere like serologicals, neuropsychiatry, etc.

[6] Class of Drugs – 2nd

1. Antipyretics/ analgesics/ musculoskeletal,
2. Cardiovasculars like anti-hypertensives, anti-cholestrol, blood thinners, etc,
3. Metabolic drugs like anti diabetics, weight control agents, thyroid preparation etc,
4. Anti microbial: Antibiotics, antifungals,
5. Gastroenterologicals like anti-ulcerants, digestives, antacids, laxatives, anti-emitics etc,
6. Supplements like vitamins, minerals, hepatic stimulants, etc,
7. Cough syrups: Anti-tussive, expectorants, bronchodilators, mucolytics etc,
8. Anti – allergic and steroids,
9. Others include classified not elsewhere like serologicals, neuropsychiatry, etc.
10. No second drug

[7] Age of Original Prescription

1. Not based on prescription

2. Less than 6 months
3. 6-12 months
4. More than 12 months
5. Don't know/ remember

[8] If not based on prescription, who suggested the medication?

1. Prescribed to someone else in the family
2. Suggested by friend/ acquaintance
3. Self knowledge/ read about it
4. Suggested by pharmacist

[9] Do you know the medication has to be take on prescription and can have side effects ?

1. Yes – adequate knowledge about problems of self medication,
2. No – no knowledge of troubles of self medication.

[10] Why don't you consult a doctor before buying & taking medicines?

1. Lack of time/ inconvenience,
2. Comfort with existing medication,
3. Fear of being over medicated/ over tested/ lack of confidence, etc,
4. Economic conditions.