Indo Global Journal of Pharmaceutical Sciences, 2012; 2(2): 167-178

INDO GLOBAL JOURNAL OF PHARMACEUTICAL SCIENCES
ISSN 2249- 1023

Exploratory Study on Consumer's Drug Knowledge Status in Haryana, India

Pankaj Jain[a], Ajay Sachan[b], Rajeev K Singla[c], Pankaj Agrawal[a]

[a] *Mahatma Jyoti Rao Phoole University, Rajasthan, India*

[b] *Drug Control Department, Govt. of NCT of Delhi, New Delhi, India*

[a] *Division of Biotechnology, Netaji Subhas Institute of Technology (University of Delhi), Azad Hind Fauz Marg, Sector-3, Dwarka-110078, New Delhi, India*

Address for Correspondance: rajeevsingla26@gmail.com

ABSTRACT: Current survey was to statistically analyze the status of consumer's drug knowledge in the northern state of India i.e. Haryana. A total of 2000 respondents including actual drug users and messengers were the part of this study. Inclusion and exclusion criteria were followed while selecting the respondents. Results are statistically significant and revealed that the consumer's knowledge is highly insufficient. So it is highly recommended to initiate public awareness program to enrich the consumer's brain with more of the drug information, henceforth can be beneficial for self or society.

KEYWORDS: Self Medication; Consumer's Drug Knowledge; Drugs.

INTRODUCTION

According to WHO, health is defined as state of complete physical, mental and social well being and not merely the absence of disease or infirmity. As with all human actions, the decision regarding health behavior are influenced in part by external stimuli e.g. a pharmacist advising a patient and also by internal states such as those thoughts, feelings and beliefs[1-3].

Consumers generally have many channels of information on a variety of products; however, the information specific to drugs is more limited. They depend on doctors for what drugs to purchase and consume, particularly for prescription drugs. Thus the consumer does not exercise the power of choice over what he/she is purchasing, as the doctor prescribing the drug makes this choice. Considering this unique position with respect to drugs, it is essential that consumers are well informed for them to be involved in the decision-making processes concerning their own health and make informed choices. The need for consumer drug information emanates from the basic right to health of individuals. People must have knowledge about what medications they are being advised to

consume in the interest of their own health. It is a basic right to know what one is consuming. The Alma Ata Declaration[4] states: "People have the right and duty to participate individually and collectively in the planning and implementation of their health care". Moreover, the issue of right to essential medicines, right to safe medicines is closely tied with the right to health, right to livelihood with dignity and right to life[5]. Further, consumers have a right to be informed about the quality, quantity, potency, purity, standard and price of goods so as to protect them against unfair trade practices. There is also a right to consumer education. This means the right to acquire the knowledge and skill to be an informed consumer throughout life[6]. According to the World Health Organization (WHO) consumers need information and education on medicines and appropriate treatment-seeking strategies for public health4 so that 1) Individuals and communities can take responsibility for their health. 2) As patients they can be informed partners in therapeutic decision making and subsequent drug use. 3) As consumers they have the basic tools for rational and safe direct purchase of medicines, and can put in context the claims of commercial drug promotion[7,8].

Current survey covered one of the most important northern state of India, Haryana to analyze the status of consumer's drug knowledge.

RESEARCH METHODOLOGY

Study Area: The study area will be Haryana state of India. included both rural and urban areas of Haryana. The study facilities was community pharmacies and by directly approaching to patient and care taker/attendant. The data was collected from each district of Haryana and covered urban and rural, literate and illiterate population belonging to every community. This ensured the homogeneity of sample. The sample population consists of income of different level and having different life styles.

Study Design: The data for this study was collected by the survey method in community pharmacies and by directly approaching the patient and care giver/ attendant. The structured research instrument was an interview schedule, which sought information on demographic background and self-medication practices. The interview schedule was used to interview persons who have just come to the community pharmacies for self-medication during the study period for their own use or as messengers for others. The study followed a multi-stage stratified sampling of drug retail outlets (by level, area and ownership) and drug consumers (by the different decisions made). The study was conducted from May 2009 to June 2010, at community pharmacies found in Haryana. There were two major groups of drug consumers (patients with prescription and those without prescription) going to these data collection sites, community pharmacies. Drug consumers purchase drugs with prescription are excluded from the study. The other group consisted came to purchase drugs without prescriptions (self-medication) during the study period were the targets of the study. Drug consumers coming without prescriptions are again subdivided into two; actual drug consumers and messengers. Actual drug consumers are drug consumers who come to the community pharmacy for self-medication for his/her own ailment. Drug consumers messengers are drug consumers who come to purchase drugs not for themselves but for others.

Samples and sampling: There were approximate 8000 formally licensed community Pharmacies in Haryana. A total of 60 community pharmacies were included in this study of which all were privately owned. A total of 2000 questionnaires were distributed of the total distributed questionnaires, 1403 (70.15%) for actual drug users and 502 (25.1%) for messengers were filled and collected while 95, 4.75% i.e.,55 from questionnaire Form Actual drug user and 40 From messengers were found to be incomplete and/or excluded from the data entry upon cleaning. Hence the total return rate was 95.25%.

Inclusion and exclusion criteria: As the study is about public at large and person involved in health profession like, medicine, pharmacy, nursing, veterinary and paramedical are excluded from the study as they have different level of knowledge of drugs and hence different pattern of self medication can be found in these professionals which will affect the results in overall, hence excluded from the study.

Inclusion criteria:

1. Inhabitant of study area i.e. Haryana, India
2. Of sound mind
3. Can communicate by at least one of the means viz. speaking or writing
4. Consuming any category of medicine without any prescription at time of study

Exclusion Criteria:

1. Inhabitant outside the study area.
2. Of insane mind.
3. Unable to communicate
4. A registered medical practicioner
5. Pharmacist
6. Nurse
7. Any Paramedic
8. Any other person working in health care sector at any level.
9. Drug consumers, taking medicines with valid prescription.

Study Instrument:

Pre-testing of the questionnaires and orientation to data collectors

The questionnaire was prepared and pre-tested in selected community pharmacies, which are similar to actual data collection sites but not included in the study. Data collectors and investigator did the pre-testing. Then important feedbacks obtained from the pre-testing were incorporated to make the final form of the questionnaire. In addition, orientations of the data collectors were given at the site of data collection. Every data collector was followed either face to face or through telephone by investigator to clarify doubts and standardize the data collection.

Data collection and analysis

Data were collected in the sampled community pharmacies and from the sampled population over six months duration using a structured and pre-tested questionnaire. Data collectors were extensively supervised. Particularly, the first few questionnaires at each study community pharmacy were used to closely follow and provide immediate feedback and make adjustments by the data collectors.

After the data were collected, inspected/cleaned, coded and entered by the investigator, it was entered into EPI Info Version 3.5.3 programmed for this purpose. The responses to the open ended questions were grouped and coded and analysis made accordingly. Information was generated based on the information required by the investigator and envisaged and planned ahead of time.

RESULTS & DISCUSSION

Actual drug consumers and messengers were asked to mention the top five commonly known/used drugs. A total of 163 different generic/brand drugs or categories of drugs were mentioned by actual drug users and 187 drugs by messengers. From those mentioned drugs, the top 15 frequently known/used drugs were identified and tabulated by their generic name or category irrespective of their brand names. Accordingly, among the top 15 frequently known/used dugs by actual drug users six of them were antimicrobials, ciprofloxacin 10.9%, levofloxacin 9.4%, Metronidazole 7%, Amoxicillin 5.7%, and three were antihelmentics, Mebendazole 7.8% (**Table 1A & 1B**).

Interviewees were also asked whether they have the understanding of the common drug interactions. More than 50% of the respondents of actual drug users and messengers were having the understanding that drugs may interact with other drugs, alcoholic drinks and some foods but most of them were unable to give examples. Drug consumers were also asked whether they know that some drugs cannot be given to children, pregnant or breastfeeding mothers and to patients with chronic diseases the results are shown in **Table 2** & **Figure 1**. Respondents were also assessed as to their knowledge of dosage forms that is whether they knew that the same drug could be given by different routes. Of the total respondents around 70% of both actual drugs users and messengers were found to know the presence of different dosage forms of the same drug.

Table 1A: Frequently known drugs by drug consumers

No.		Frequency	Percentage (%)
1	Paracetamol	892	9.0
2	Ciprofloxacin	867	8.8
3	Levofloxacin	858	8.7
4	Mebendazole	775	7.8
5	Cetrizine	725	7.3
6	Cough Syrups	708	7.2
7	Metronidazole	689	7.0
8	Diclofenac	658	6.7
9	Ibuprofen	645	6.5
10	Nimuslide	625	6.3
11	Amoxicillin	567	5.7
12	Antacid Products	555	5.6
13	Lansaprozole	474	4.8
14	Alprazolem	460	4.7
15	Betamethasone	388	3.9
	Total	9886	100

Table 1B: Frequently known drugs by messengers

No.		Frequency	Percentage (%)
1	Paracetamol	666	11.3
2	Ciprofloxacin	645	10.9
3	Levofloxacin	557	9.4
4	Mebendazole	523	8.9
5	Cetrizine	490	8.3
6	Cough Syrups	433	7.3
7	Metronidazole	345	5.8
8	Diclofenac	345	5.8
9	Ibuprofen	319	5.4
10	Nimuslide	311	5.3
11	Amoxicillin	298	5.0
12	Antacid Products	290	4.9
13	Lansaprozole	267	4.5
14	Alprazolem	223	3.8
15	Betamethasone	190	3.2
	Total	5902	100.0

Table 2: Knowledge of drug interactions of drug consumers

		Actual Drug Users				Messengers			
		Yes		No		Yes		No	
No.	Type of Interaction	**Freq**	**(%)**	**Freq**	**(%)**	**Freq**	**(%)**	**Freq**	**(%)**
1	Drug with Drug	800	57.0	603	43.0	303	60.4	199	39.6
2	Drug with alcohol	1102	78.5	301	21.5	414	82.5	88	17.5
3	Drug with some food	570	40.6	833	59.4	312	62.2	190	37.8
4	Cannot be given to Children	600	42.8	803	57.2	210	41.8	292	58.2
5	Cannot be given to pregnant & breast feeding	707	50.4	696	49.6	250	49.8	252	50.2
6	Cannot be taken by people with chronic diseases	392	27.9	1011	72.1	332	66.1	332	66.1

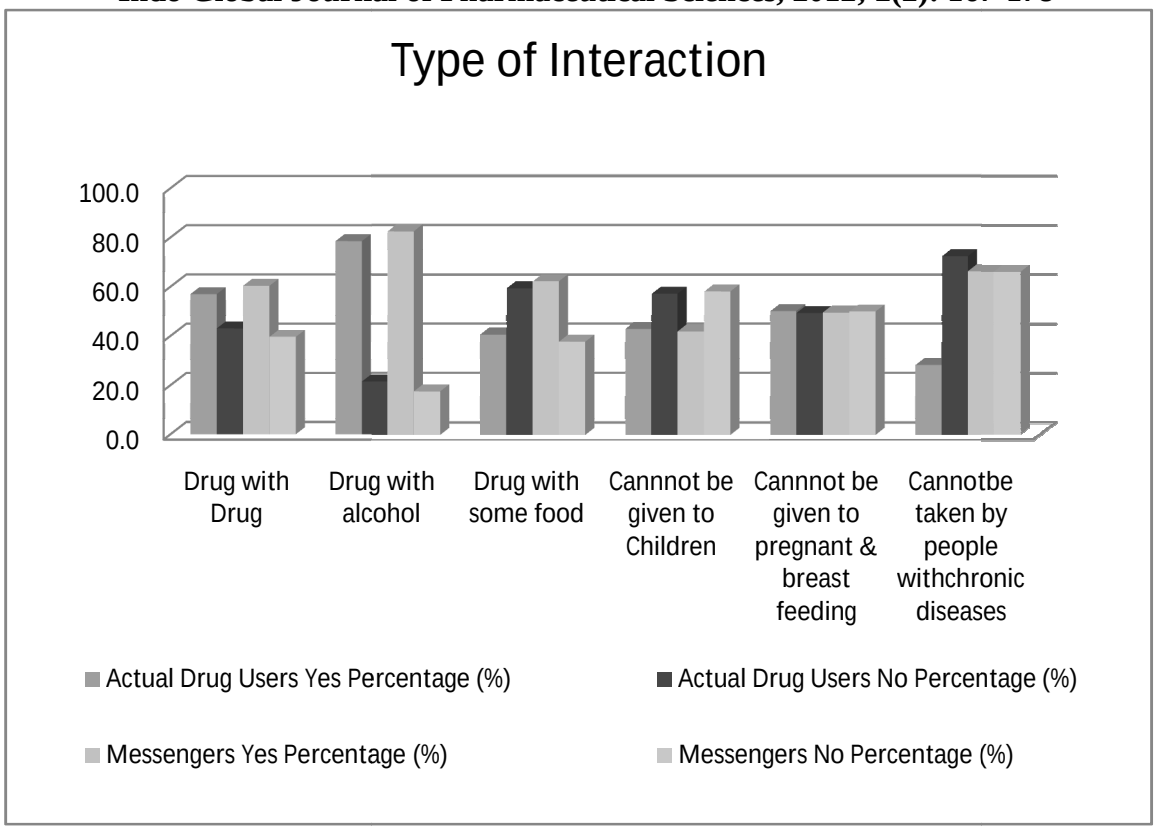

Figure 1 Knowledge of drug interactions of drug consumers

Dosage form preferences

The frequent empirically encountered situation is dosage form preferences and the reasons for the choice by the drug consumers. More than 96% of all the respondents preferred one or the other dosage form. The top two preferred dosage forms were injections 21.4% and tablets 40.3% for ADU and tablets 58.8% and injections 8.9% for messengers (**Table 3** & **Figure 2**).

Table 3: Dosage Form Preferences of Drug Consumers

Dosage Form Preferences	Actual Drug User		Messengers	
	Freq	(%)	Freq	(%)
Tablets	566	40.3	295	58.8
Capsules	188	13.4	29	5.8
Liquid preparation	287	20.6	58	11.5
Injection	300	21.4	95	18.9
No preference	62	4.4	25	5.0
Total	1403	100	502	100

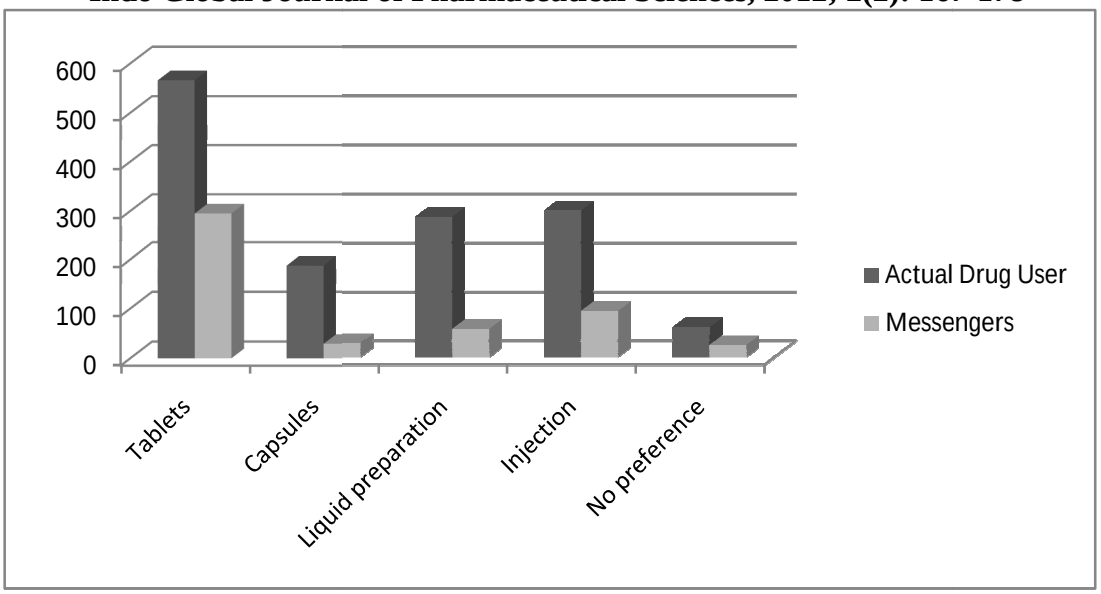

Figure 2: Dosage Form Preferences of Drug Consumers

The reasons given by respondents for their preferences of one or the other dosage forms were grouped into 10. The top 3 reasons for drug dosage form preferences of actual drug users were:

- It cures or acts quickly, 38.6%
- Convenience to administer/take/handle or store, 23.1% of the respondents for preferring tablets and capsules; and
- Fear from injection 11.7%.

The two top reasons for preferring dosage forms by the messengers are the same as for actual drug users mentioned above but the third reason for not preferring of oral dosage forms is fear of injections 15.6% of the respondents (**Table 4** & **Figure 3**).

Table 4: Reasons given by respondents for preference of dosage forms

		Actual Drug Users		Messengers	
No.	**Reasons**	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
1	Will not affect GI	53	3.8	44	8.8
2	Cures or acts quickly	542	38.6	120	23.9
3	Bad taste are masked	23	1.6	33	6.6
4	Not to forget taking	39	2.8	6	1.2
5	Difficulty of swallowing	42	3.0	6	1.2
6	Problem of Infection	10	0.7	0	0.0
7	Problem of Pain	122	8.7	12	2.4
8	Convenient to manage	324	23.1	170	33.9
9	Fear of Injections	164	11.7	80	15.9
10	Other Reasons	84	6.0	31	6.2
	Total	1403	100	502	100

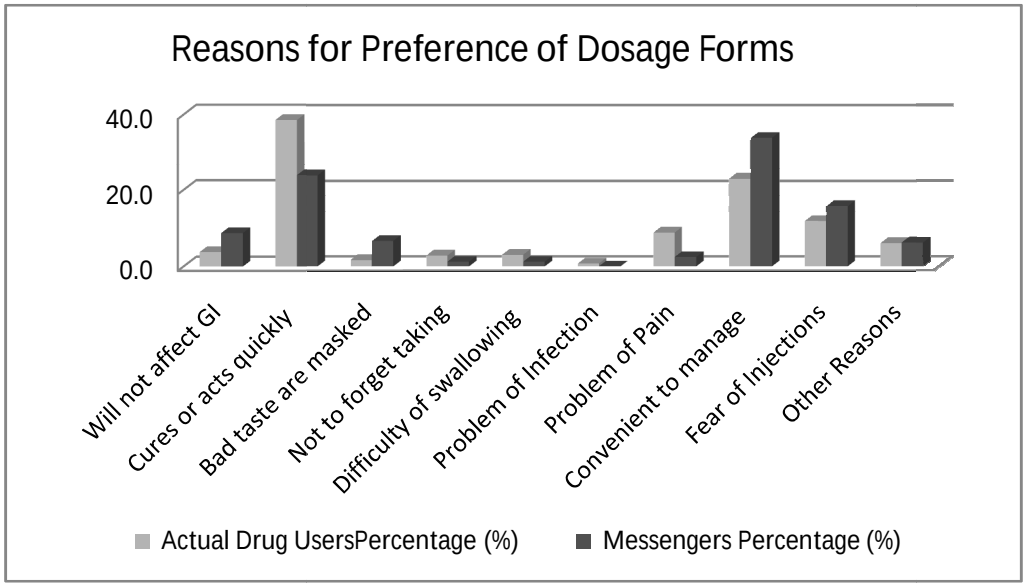

Figure 3: Reasons given by respondents for preference of dosage forms

Drug consumers were asked what would they do if they forget a dose of a drug and remember it immediately. Less than half (43.5%) of the actual drug users and 37.1% of the messengers responded that they would take it as soon as remembered and continue the rest as scheduled before. The rest of the respondents replied otherwise (**Table 5**). Respondents were also asked as to how they store drugs at home the results are presented in **Table 6** above.

Respondents were asked whether they fast drugs too as they do for food. It was found that 60% of actual drug users and 5% of the messengers discontinue taking drugs during fasting period. The reasons given for fasting were grouped into five. The first and frequent reason was religious 48% of actual drug users and 57.6% of the messengers believed that drugs couldn't be taken on an empty stomach (**Table 7**).

Table 5: Actions taken by respondents after forgetting a dose of a drug and immediate recall

No.	Action	Actual Drug Users		Messengers	
		Frequency	Percentage (%)	Frequency	Percentage (%)
1	Taking as soon as remembered	610	43.5	186	37.1
2	Double the next dose	170	12.1	48	9.6
3	Leave the missed Dose	364	25.9	223	44.4
4	Other actions	259	18.5	45	9.0
	Total	1403	100.0	502	100.0

Table 6: Percent of respondents who have Knowledge on how to store drugs at home

No.	Storage place and response (yes/no)	Actual Drug Users		Messengers	
		Freq	(%)	Freq	(%)
1	Out the reach of children, yes	800	57.0	402	80.1
2	All drugs in the kitchen/bathroom, no	502	35.8	333	66.3
3	All Drugs in the refrigerator, no	200	14.3	319	63.5
4	All drugs in one place but separated, no	761	54.2	400	79.7
5	Other Places	706	50.3	389	77.5
	Total	1403	100.0	502	100.0

Table 7: Frequent reasons for discontinuing drugs during fasting

No.	Reasons	Actual Drug Users		Messengers	
		Frequency	(%)	Frequency	(%)
1	Religious Reason	673	48.0	50	10.0
2	Drugs cannot be taken empty stomach	90	6.4	289	57.6
3	Shifting the dose to non fasting period	49	3.5	55	11.0
4	Do not discontinue	561	40.0	25	5.0
5	When side effect create problems	30	2.1	83	16.5
	Total	1403	100.0	502	100.0

Knowledge on drugs

One form of self-medication is sharing of drugs among drug consumers. According to this study, more than a quarter of the drug consumers do share any drug they have with their relatives, friends and neighbours, etc. The frequently mentioned reasons for sharing were: Sharing of drugs for common, known and non-serious illnesses; sharing of analgesics and antacids only, sharing when not accessible due to geographic or economic reason; sharing drugs thinking that the drugs will not harm, and for emergency situations (**Table 8**).

Table 8: The frequent reasons for sharing of drugs

No.	Reasons for sharing drugs	Actual Drug Users		Messengers	
		Freq	(%)	Freq	(%)
1	sharing for common, known and non serious illness	512	36.5	90	17.9
2	sharing analgesis an anti-acids only	302	21.5	95	18.9
3	sharing due to lack of access and do not want	100	7.1	60	12.0

	HCPs				
4	Sharing for economic reasons	150	10.7	35	7.0
5	sharing because it has no problem	110	7.8	52	10.4
6	sharing for emergency use	80	5.7	135	26.9
7	Do not share	149	10.6	35	7.0
	Total	1403	100.0	502	100

In this study, consumer's drug knowledge was also indirectly assessed. Respondents were asked whether they concomitantly take alcoholic drinks while they are taking drugs. More than 49.5% of them responded that they do not take alcohol while taking drugs. However, only less than 57.1% of the respondents knew the differences between antimicrobials and analgesics. Interviewees were asked whether they check expiry date of drugs while purchasing or taking drugs. It was found that less than 72% of the respondents do not check expiry dates of drugs at any time (**Table 9**).

Table 9: Self-medication practices/consumers drug knowledge on drugs

		Actual Drug Users				**Messengers**			
		Yes		**No**		**Yes**		**No**	
No.	**Knowledge**	**Freq**	**(%)**	**Freq**	**(%)**	**Freq**	**(%)**	**Freq**	**(%)**
1	Discontinue taking drugs during fasting	150	10.7	1253	89.3	207	41.2	395	78.7
2	taking drugs with alcohol	708	50.5	695	49.5	110	21.9	392	78.1
3	sharing of drugs	1102	78.5	301	21.5	301	60.0	201	40.0
4	checking of expiry dates before taking	1010	72.0	393	28.0	410	81.7	92	18.3
5	know the difference between antimicrobial and analgesic	602	42.9	801	57.1	245	48.8	257	51.2
6	Discontinue taking drugs before the date advise by HCP	1201	85.6	202	14.4	366	72.9	136	27.1
	Total	1403	100.0	502	100	1403	100	502	100

Finally, interviewees were requested to freely tell their experience about drugs. The frequent comments given are grouped as:

- Drugs are important to prevent, relieve and cure illnesses if properly used and chronic use of drugs is dangerous.
- Drugs should be used with proper diagnosis and prescription.
- Quality of drugs is related to the brand and country of origin of the drugs.
- The public does not have adequate knowledge of drugs so pharmacists should provide proper counselling and advice.
- Other comments mentioned include: drugs are not important for self-medication, home remedy is better and traditional medicine is better, etc, (**Table 10**).

Table 10: Information provided about drugs by respondents

No.	Information	Actual Drug Users		Messengers	
		Frequency	(%)	Frequency	(%)
1	Drugs are important	810	57.7	360	71.7
2	Drugs should be used with proper diagnosis and prescription	215	15.3	101	20.1
3	Drug quality is related to brand	800	57.0	370	73.7
4	The public does not have adequate knowledge on drugs and need advice of health care providers	380	27.1	175	34.9
5	All others	542	38.6	282	56.2
	Total	1403	100.0	1288	100

CONCLUSION

Knowledge and understanding improves use of medicine during short-term regimen. It cannot be said that knowledge ensures appropriate use, but knowledge and understanding of treatment are certainly important factors in whether drugs are used well. It was clear that different problems and different types of illnesses and therapies required different strategies to ensure appropriate use [9]. Family members and members of the community can supervise and teach people to take their medicines appropriately and pharmacists have an important role to play who are often under used.

It is extremely difficult to investigate the rate at which the misuse of pharmaceutical induces illness. There are ethical problems in doing research of this sort without immediately advising people of the risks of a medication and there are problems of documenting carcinogenic due to delayed effects of many drugs. And there are problems of confounding side effects of medication with symptoms of the primary illness. Pharmaceuticals can be dangerous substances in anyone's hands, but particularly so in the hands of those who have no or little awareness of potential risks and correct administration.

ACKNOWLEDGEMENT

All the authors express sincere gratitude to all respondents whose honest attention lead the project to worthful outcome.

REFERENCES

1) Shiferaw, M. and Fanta, H. *Epidemiology,* a Manual for Health Workers and Students in Ethiopia, Published by Health Learning Materials Development and Production Division, Ministry of Health, Ethiopia, 1990.
2) Pankaj Jain, Ajay Sachan, Rajeev K Singla, Pankaj Agrawal. Statistical Study on Self Medication Pattern in Haryana, India. Indo Global Journal of Pharmaceutical Sciences. 2012; 2(1): 21-35.

3) Pankaj Agrawal, Ajay Sachan, Rajeev K Singla, Pankaj Jain. Statistical Analysis of Medication Errors in Delhi, India. Indo Global Journal of Pharmaceutical Sciences. 2012; 2(1): 88-97.
4) Declaration of Alma Ata in: *Primary Healthcare*, Geneva, World Health Organization. 1978.
5) Dr. Mira Shiva and Dr. Wishvas Rane, "Banned & Bannable Drugs *Unbiased Drug Information Essential Drugs and Rational Drug Policy* (Voluntary Health Association of India, New Delhi, 2004).
6) Para 61 of the United Nations Guidelines for Consumer Protection (as expanded in 1999). The right to consumer education has also been recognized in the Consumer Protection Act, 1986. See for instance, Sec. 6(f) of the Act. See also: http://www.corecentre.org/rights_faqs.
7) Yamini Srivastava, K.M. Gopakumar. Consumer Drug Information in India: A Situational Analysis in Collaboration with CDSCO, MOHFW, GOI and WHO country office for India. Centre for Trade & Development(New Delhi, India), 2007, Vol 2, 1-91.
8) Manthan D Janodia, I Meenakumari, MA Ganapathy, VM Subrahmanyam, N Udupa, D Sreedhar, Virendra S Ligade. Patents, Health Policy and Access to Medicines. Indo Global Journal of Pharmaceutical Sciences. 2011; 1(1) : 33-38.
9) World Health Organization (WHO/DAP). How to investigate drug use at community level 1992; Number 13 P.14.

Indo Global Journal of Pharmaceutical Sciences(ISSN 2249 1023 ; CODEN-IGJPAI) indexed and abstracted in EMBASE(Elsevier), SCIRUS(Elsevier), Chemical Abstract Services(CAS), American Chemical Society(ACS), Index Copenicus, EBSCO, DOAJ, Google Scholar and many more. For further details, visit http://iglobaljournal.com