A Study on the Dispensing Pattern of OTC Medications in Community Pharmacies: Generic versus Non-Generic drugs

Aditya R¹, Ankitha P B¹, Bemiya Benny¹, Krithika Joy¹, Navyashree G A₂

¹Department of Pharmacy Practice, Dayananda Sagar College of Pharmacy, Bengaluru-560078, Karnataka, India
²Department of Pharmacy Practice, College of Pharmaceutical Sciences, Dayananda Sagar University, Bengaluru-560078, Karnataka, India

Article History:
Received on: 01 Sep 2020
Revised on: 01 Oct 2020
Accepted on: 07 Oct 2020

Keywords:
Analgesics,
Antipyretics,
Generic,
Non-Generic,
OTC drugs,
Patient counselling,
Pharmacy

ABSTRACT

Over the Counter (OTC) Drugs are legally allowed to be sold ‘Over the Counter’ without the prescription of a registered medical practitioner (RMP). The study aimed to assess the drug dispensing pattern of the commonly dispensed category of OTC drugs, understand the patient’s knowledge using a self-designed questionnaire and to compare the cost-effectiveness based on the unit price of drugs between generic and non-generic drugs. A prospective observational study was conducted from November 2018 to April 2019 in randomly selected licensed community pharmacies in Banashankari, Bengaluru (3 private pharmacies and 1 government-sponsored pharmacy). Data collected was documented and analyzed using Microsoft Excel and Z test. 59.33% (non-generic) & 24.67% (generic) pharmacists had collected the clinical history before dispensing the drugs. Non-generic pharmacists (62.00%) provided adequate information about the dispensed drug than generic pharmacists (30.00%). The frequently dispensed OTC drugs were analgesics and antipyretics and commonly reported illness was a pain. Consumers had an opinion that the usage of OTC drugs was safe and was not aware of the side effects. Patient counselling was given to 82% of the consumers in generic and 43% in non-generic pharmacies regarding their health issue and medications. Generic drugs were more cost-effective than non-generic drugs.

INTRODUCTION

A community pharmacy is a dispensary maintained by people who hold a degree in pharmacy and a license to sell medication to a community. A community pharmacist is a person who runs the pharmacy by selling medicines to the consumers visiting his pharmacy. They supply medicinal products as per the prescription of a registered medical practitioner or legally permitted non-prescription drug (Parthasarathi et al., 2012). Duties of a pharmacist towards the community include dispensing of prescription and non-prescription medicinal drugs, the use of medicinal products to the public, and participation in health-promotion programs. They also maintain links with healthcare experts from various hospitals (Parthasarathi et al., 2012). Dispensing refers to the process of compounding, labelling, packaging of the medicines to the people through a prescription. It involves the proper inter-
OCT (over the counter) medications are the medicinal agents or compounds that are legally allowed to be sold without a prescription of a registered medical practitioner. These products include antacids, few painkillers, few anti-acidity medicines, fever medicines, especially those which do not fall under Schedule H drugs. Few examples of OTC medications include paracetamol, ibuprofen, pantoprazole, calcium carbonate antacids, methyl salicylate gel, etc. The use of non-prescription medications is rising internationally. Since Indians have a huge tendency of self-treatment, the Indian market is characterized by a huge demand for non-prescription medications (Nagaraj et al., 2015). The non-prescription drug market in India ranks 11th position in the global market. This trend is increasing tremendously and can reach the 9th position within the next five years. Before the Food and Drug Administration (FDA) existed, just about anything could be added into the bottle and sold as a cure. Alcohol, cocaine, and opium were included in some OTC products without notification to users. In 1938, the Food, Drug, and Cosmetic (FD&C) Act was endorsed and gave the FDA some authority to issue regulations. But this act did not provide any clear guidelines to distinguish between prescription and non-prescription medications (Abraham et al., 2015). Prescription medications are those that fall under two schedules of the ‘Drug and Cosmetic rules 1945’ that is Schedule H and Schedule X. This legal action was taken to prevent self-medication (Nagaraj et al., 2015). An amendment to the FD&C act in 1951, defined as the prescription medicines are compounds that could be habit-forming, toxic, or unsafe for use except under a doctor’s supervision. Anything else could be sold as non-prescription (Abraham et al., 2015). The analgesic, paracetamol was the first drug to be made available OTC since 1959 (Stosic et al., 2011; Tylenol, 2020).

Non-prescription medicines provide prevention and treatment for a wide range of conditions, including but not limited to headaches, common cold, musculoskeletal pain, allergies, tobacco dependence, and heartburn (Anderson, 1973). Non-prescription medicines offer advantages like easy access to the medicinal drug, self-management of minor complaints with the help of pharmacists, and utilization of available resources (Nagaraj et al., 2015). However, there is also a risk involved in using OTC medications (Anderson, 1973; Wazaify et al., 2008). It includes improper self-diagnosis, inappropriate dosage, addiction issues upon prolonged use, adverse drug reactions, and drug interactions (Hughes et al., 2001; Bond and Hannaford, 2003).

Most patients do not discuss their non-prescription medicaments with the physician; hence they are unaware of the risks associated with non-prescription medicines. Besides, direct-to-patient advertising increases the exposure of medications to the patients (Sansgiry et al., 2016). As a result, there is increased product use in the absence of professional help (Bond and Hannaford, 2003; Aronson, 2004).

OTC drug abuse is well-known in many countries with recognized problems (Cooper, 2013). Abuse is frequently intentional, which can be an incorrect use of the product at the incorrect dosage with a lack of interaction knowledge and improper administration (Hall et al., 2012). Adverse effects of OTC drugs mostly are gastrointestinal complaints, allergic reactions, tachycardia, seizures, and dizziness which leads to an increase in the number of hospital admissions by 70% from 2004 to 2008. In India, adverse effects, abuse, and hospitalizations related to OTC are increasing every day (Nagaraj, M, 2015). However, drug consumers believe that OTC medications are less risky and safer when compared to prescription drugs (Cybulski et al., 2018).

This increasing trend of self-medication may cause a huge rise in the interactions, adverse reactions, and misuse/abuse of these products. So, it is advisable to assess people’s knowledge about OTC medicines. Hence, the study was undertaken to evaluate the dispensing pattern of OTC medications in community pharmacies in South Bengaluru.

**METHODOLOGY**

A prospective observational study was conducted for eight months, in 4 randomly selected licensed community pharmacies in and around Banashankari, South Bengaluru. The data was collected from the people visiting these pharmacies on their consent.

The study subjects were selected based on inclusion and exclusion criteria. 400 participants were approached out of which 300 participants gave the consent to take part in the study, and others refused to take part in the study due to time constraints and language barriers. The data for this study was sourced by interviewing 300 participants, 150 from each generic and non-generic pharmacies using a self-designed questionnaire.

It was conducted by 4 Pharm D students who were
assigned to interview the consumers visiting the pharmacy for the purchase of OTC medications. The pharmacists were explained about the study, and their permissions were obtained. The consumers were briefed about the study through a self-designed questionnaire prepared by the chief investigator, and their written consent was taken. The questionnaire includes age, gender, allergies, symptoms, current illness, past medication history, past medical history, medicines dispensed & questions were based on their knowledge regarding drugs dispensed, if the data provided was incomplete such subjects data were excluded from the study. The response rate of pharmacies who agreed to participate was 40%. In this study pharmacists (who holds a diploma or bachelor’s degree in pharmacy with a license to dispense medicines in the community) were involved.

Data were recorded on a pre-designed data collection form and managed on an MS Office Excel spreadsheet. The descriptive statistics were represented by mean ± standard deviation and percentages. The parametric Z-test determined the differences between the groups. Statistical significance was defined as p<0.05. All P values were two-tailed.

RESULTS AND DISCUSSION

Socio–demographics data

It was found that more males visited the pharmacies than females; a similar trend was observed in a previous study (Nagaraj et al., 2015). In this study, the percentile of participants from the non-generic group stood at 63.33% males and 36% females and in the generic group at 71.34% males and 28.66% female. The female inflow to the non-generic pharmacy (36.00%) was higher than the generic pharmacy (28.66%) due to easy accessibility and a higher number of non-generic pharmacies available in the area where the study was conducted.

It was observed that adults (median age = 41.5 yrs) were the most frequent buyers of OTC drugs at a percentile of 87.33% from non-generic pharmacies and 78.66% from generic pharmacies. The difference in the proportion of adults preferring non-generic and generic drugs was statistically significant (Z= 6.5, p <0.001).

Clinical History

It was observed that 59.33% pharmacists in the non-generic pharmacy took clinical history before dispensing the drug compared to the pharmacists in generic pharmacy which stood at 24.67% therefore, the difference in the proportion of clinical history taken by the pharmacist in the generic and non-generic pharmacies were statistically highly significant (Z= 6.5, p <0.001).

Common complaints

It was observed that most commonly reported illness for the consumption of OTC drugs in the non-generic group was a pain (46.00%) followed by respiratory problems (23.33%), GIT problems (18.00%), dermatological problems (4.00%), multivitamins and minerals deficiencies (2.00%) and others (6.67%) likewise, in the generic group the commonly reported complaints were pain (35.34%) followed by GIT problems (25.33%), multivitamins and minerals deficiencies (17.33%), dermatological problems (10.00%), respiratory problems (6.67%) and others (5.33%) as shown in Figure 1. According to a preceding study, the recurrent illness for the purchase of OTC drug was pain which included dental pain and body pain (Nagaraj et al., 2015).

Figure 1: Common complaints about the use of OTC drugs

Figure 2: Commonly dispensed categories of OTC drugs

In this study, it was observed that the difference in
Table 1: Dispensing pattern of OTC drugs in community pharmacies

| Parameters                      | Non-generic | Generic | Z-value | P-value |
|---------------------------------|-------------|---------|---------|---------|
| **Age**                         |             |         |         |         |
| Adolescents (12–17yrs)          | 2(1.33%)    | 0       |         |         |
| Adults (19–64yrs)               | 131(87.33%) | 118(78.66%) | 2.016 | 0.022* |
| Elderly (>65yrs)                | 17(11.34%)  | 32(21.34%) | 2.380 | 0.009**|
| Total                           | 150         | 150     |         |         |
| **Gender**                      |             |         |         |         |
| Male                            | 95(63.33%)  | 107(71.34%) | 1.484 | 0.694NS |
| Female                          | 54(36.00%)  | 43(28.66%)  | 1.364 | 0.913NS |
| Transgender                     | 1(0.67%)    | 0       |         |         |
| Total                           | 150         | 150     |         |         |
| **Clinical history taken**      |             |         |         |         |
| Yes                             | 89(59.33%)  | 37(24.67%)  | 6.5   | <0.001**|
| No                              | 61(40.67%)  | 113(75.33%) | 6.5   | <0.001**|
| Total                           | 150         | 150     |         |         |
| **Common complaints**           |             |         |         |         |
| Pain                            | 69(46.00%)  | 53(35.34%)  | 1.940 | 0.026* |
| Respiratory problems            | 35(23.33%)  | 10(6.67%)   | 4.311 | <0.001**|
| GIT problems                    | 27(18.00%)  | 38(25.33%)  | 1.553 | 0.060NS |
| Dermatological problems         | 6(4.00%)    | 15(10.00%)  | 0.759 | 0.226NS |
| MV and minerals deficiency      | 3(2.00%)    | 26(17.33%)  | 4.678 | <0.001**|
| Others                          | 10(6.67%)   | 8(5.33%)    | 0.481 | 0.684NS |
| **Commonly dispensed OTC drugs**|             |         |         |         |
| Analgesics                      | 62(41.34%)  | 54(36.00%)  | 0.949 | 0.826NS |
| Analgesics and antipyretics     | 11(7.33%)   | 7(4.67%)    | 0.992 | 0.839NS |
| Anti-histamines                 | 11(7.33%)   | 15(10.00%)  | 0.822 | 0.206NS |
| Analgesics & Anti-histamines    | 25(16.67%)  | 7(4.67%)    | 3.433 | 0.0003**|
| GI drugs                        | 27(18.00%)  | 38(25.33%)  | 1.547 | 0.062NS |
| Supplements                     | 3(2.00%)    | 26(17.33%)  | 4.655 | <0.001**|
| Others                          | 11(7.33%)   | 3(2.00%)    | 2.206 | 0.014* |
| **Information provided by a pharmacist about the medications** | | | | |
| Yes                             | 93(62.00%)  | 45(30.00%)  | 6.030 | <0.001**|
| No                              | 57(38.00%)  | 105(70.00%) | 6.030 | <0.001**|
| Total                           | 150         | 150     |         |         |

*Significant (p< 0.05)
**Highly significant (p< 0.001)
NS Not significant

Figure 3: Source of information about the drug

the proportion of pain as a complaint in the non-generic and generic group was statistically significant (Z=1.940, p<0.026). In contrast, the difference in the proportion of respiratory problems as a complaint in the non-generic and generic group was statistically highly significant (Z= 4.311, p< 0.001). The difference in the proportion of multivitamins and mineral deficiency as a complaint in the non-generic and generic groups was statistically highly significant (Z= 4.678, p< 0.001). Other complaints reported were respiratory, GI, and dermatological...
### Table 2: Patient’s knowledge assessment of OTC medications

| Currently dispensed medication taken before | Non-generic | Generic | Z-value | P-value |
|-------------------------------------------|-------------|--------|---------|---------|
| Yes                                       | 109(72.67%) | 130(86.67%) | 3.180  | 0.001** |
| No                                        | 41(27.33%) | 20(13.33%)  | 3.180  | 0.001** |
| Total                                     | 150        | 150     |         |         |

| The extent of familiarity about the medicine: | Non-generic | Generic | Z-value | P-value |
|-----------------------------------------------|-------------|--------|---------|---------|
| Less than or equal to a month                  | 38(34.86%)  | 19(14.62%) | 3.763  | <0.001** |
| More than a month                              | 71(65.14%)  | 111(85.38%) | 3.754  | <0.001** |

| Benefit from the medication                     | Non-generic | Generic | Z-value | P-value |
|-----------------------------------------------|-------------|--------|---------|---------|
| Yes                                           | 99(90.82%)  | 125(96.16%) | 1.882  | 0.030*  |
| No                                            | 10(9.18%)   | 5(3.84%)   | 1.883  | 0.030*  |

| Experience of any side effects with this medication | Non-generic | Generic | Z-value | P-value |
|-----------------------------------------------------|-------------|--------|---------|---------|
| Yes                                                  | 4(3.67%)    | 10(7.69%) | 1.770  | 0.038NS |
| No                                                   | 105(96.33%) | 120(92.31%) | 2.000  | 0.023*  |

| Information about the drug received from           | Non-generic | Generic | Z-value | P-value |
|-----------------------------------------------------|-------------|--------|---------|---------|
| Doctor                                              | 36(33.02%)  | 60(46.15%) | 2.104  | 0.018*  |
| Pharmacist                                           | 42(38.54%)  | 38(29.24%) | 1.550  | 0.939NS |
| Internet                                             | 6(5.51%)    | 9(6.92%)   | 0.450  | 0.326NS |
| Known person                                        | 25(22.93%)  | 23(17.69%) | 1.008  | 0.841NS |

| Frequency of pharmacy visits for OTC drugs           | Non-generic | Generic | Z-value | P-value |
|-----------------------------------------------------|-------------|--------|---------|---------|
| Whenever necessary                                  | 64(42.67%)  | 54(36.00%) | 1.187  | 0.881NS |
| Once a month                                        | 86(57.33%)  | 96(64.00%) | 1.187  | 0.881NS |

| Buying medication without a prescription is economic | Non-generic | Generic | Z-value | P-value |
|-----------------------------------------------------|-------------|--------|---------|---------|
| Yes                                                  | 70(46.67%)  | 92(61.33%) | 2.580  | 0.005** |
| No                                                   | 80(53.33%)  | 58(38.67%) | 2.580  | 0.005** |

| Buying antibiotics without prescription               | Non-generic | Generic | Z-value | P-value |
|-----------------------------------------------------|-------------|--------|---------|---------|
| Yes                                                  | 52(34.67%)  | 32(21.33%) | 2.578  | 0.005** |
| No                                                   | 98(65.33%)  | 118(78.67%) | 2.600  | 0.005** |

| Usage of OTC medications are safe                    | Non-generic | Generic | Z-value | P-value |
|-----------------------------------------------------|-------------|--------|---------|---------|
| Yes                                                  | 118(78.67%) | 116(77.33%) | 0.283  | 0.610NS |
| No                                                   | 32(21.33%)  | 34(22.67%)  | 0.283  | 0.389NS |

| Awareness about the side effects of OTC drugs        | Non-generic | Generic | Z-value | P-value |
|-----------------------------------------------------|-------------|--------|---------|---------|
| Yes                                                  | 49(32.67%)  | 32(21.33%) | 2.266  | 0.012*  |
| No                                                   | 101(67.33%) | 118(78.67%) | 2.266  | 0.012*  |

| Preference for buying drugs with a particular brand name | Non-generic | Generic | Z-value | P-value |
|---------------------------------------------------------|-------------|--------|---------|---------|
| Yes                                                     | 75(50.00%)  | There are no |         |         |
| No                                                       | 75(50.00%)  | brands     |         |         |

| Usage of home remedy or alternative system of medicine | Non-generic | Generic | Z-value | P-value |
|-------------------------------------------------------|-------------|--------|---------|---------|
| Yes                                                   | 63(42.00%)  | 72(48.00%) | 1.046  | 0.149NS |
| No                                                    | 87(58.00%)  | 78(52.00%) | 1.046  | 0.850NS |

| Stocking of OTC medication at home                    | Non-generic | Generic | Z-value | P-value |
|-------------------------------------------------------|-------------|--------|---------|---------|
| Yes                                                   | 49(32.67%)  | 94(62.67%) | 5.660  | <0.001** |
| No                                                    | 101(67.33%) | 56(37.33%) | 5.660  | <0.001** |

*Significant (p<0.05)
**Highly significant (p<0.001)
NS Not significant
Table 3: A comparison of the unit cost of drugs of generic & non-generic drugs

| Sl no. | Brand-Price / Tabs (INR) | Generic Price/10 tabs (INR) | Savings |
|--------|--------------------------|-----------------------------|---------|
| 1      | Paracetamol (650mg)      | 39.5                        | 5.35    |
| 2      | Diclofenac               | 68.7                        | 3       |
| 3      | Pantoprazole             | 57.75                       | 11      |
| 4      | Omeprazole               | 26                          | 7       |
| 5      | Ranitidine               | 7.68                        | 3.65    |
| 6      | Polyvitamin              | 17.16                       | 8       |
| 7      | Cetirizine               | 20.16                       | 3       |
| 8      | Loperamide               | 24                          | 5       |
| 9      | Mefenamic acid           | 36                          | 11      |
| 10     | Calcium + Calcitriol     | 54.67                       | 14      |
| 11     | Aceclofenac              | 39.5                        | 13      |
| 12     | Pantoprazole + Domperidone | 88                    | 18      |
| 13     | ORS                      | 7                           | 7       |
| 14     | Levocetirizine           | 52                          | 4.1     |
| 15     | Nimesulide               | 45                          | 5       |
| 16     | Paracetamol + Phenylephrine + Chorpheniramine | 40 | 16 |
| 17     | Pheniramine              | 5                           | 3       |
| 18     | Aceclofenac + Paracetamol | 26.52                    | 10      |
| Median |                         | 37.75                       | 7       |

problems.

Commonly dispensed medication

The most commonly dispensed OTC drugs in the non-generic group were analgesics (41.34%) followed by GI drugs (18.00%), analgesics and antihistamines combination (16.67%), analgesics and antipyretics (7.33%), anti-histamines (7.33%), supplements (2.00%) and others (7.33%).

In contrast, in the generic group, it was found that the most frequently dispensed drugs were analgesics (36.00%) followed by GI drugs (25.33%), supplements (17.33%), anti-histamines (10.00%), analgesics and antipyretics (4.67%), analgesics and anti-histamines combination (4.67%) and others (2.00%) as shown in Figure 2.

The difference in the proportion of buying analgesics and anti-histamine combination in the non-generic and generic group was statistically highly significant ($Z= 3.433, \ p< 0.0003$) and the difference in the proportion of buying GI drugs in the non-generic and generic groups were statistically highly significant ($Z= 4.655, \ p< 0.001$). A previous study had a similar finding that analgesics were the most commonly dispensed medication (Shroti et al., 2011).

Provision of appropriate information of the dispensed drug by the dispensing pharmacist

It was observed that 62.00% of subjects in the non-generic group and 30.00% of subjects in the generic group were provided with appropriate information about the medications dispensed. The difference in the proportion of appropriate information about the medication dispensed by the pharmacists in the non-generic and generic group was statistically highly significant ($Z= 6.03, \ p< 0.001$).

The results obtained are discussed above has mentioned in Table 1.

Patient’s knowledge assessment on OTC drug

Previous exposure to the dispensed medication

Out of 150 subjects studied 109 (72.67%) in a non-generic group and 130 (86.67%) in the generic group had used the dispensed medication previously, a similar usage pattern was observed in the previous study conducted (Abraham, B T, 2015). The difference in the proportion of medication taken by the subjects in the non-generic and generic group was statistically highly significant ($Z= 3.180, \ p< 0.001$).

The extent of familiarity about the medicine

34.86% subjects in the non-generic and 14.62% subjects in the generic group have been familiar
with the medications for less than or equal to a month, whereas 65.14% subjects in the non-generic and 85.38% in the generic group have been familiar since more than a month. The difference in the proportion of extent of familiarity about the medicine by the subjects in the non-generic and generic group was statistically highly significant (Z = 3.76, p < 0.001).

**Benefit & side effects experienced by users**

90.82% subjects in the non-generic group and 96.16% subjects in a generic group reported having benefited from the OTC medications. The difference in the proportion of the benefit from the medication in the generic and non-generic group was statistically significant (Z = 1.882, p < 0.030).

3.67% and 7.69% of subjects in the non-generic group and generic group respectively reported experience of side effects from the OTC medications. Few of the reported drugs and their side effects were vomiting with Mefenamic acid (non-generic store-3, generic store-7), itching and a skin rash with Omeprazole (non-generic store-1, generic store-2), bloating or swelling of the abdomen with ORS (non-generic store-0, generic store-1). The difference in the proportion of consumers not experiencing any side effects in the non-generic and generic group was statistically significant (Z = 2.000, p < 0.023).

**Source of information about the drug**

It was observed that 33.02% subjects from the non-generic group and 46.15% subjects from the generic group who purchased OTC medication received information from their doctors whereas 38.54% subjects in the non-generic group and 29.24% subjects in the generic group received OTC medications as per the pharmacist’s recommendation. 5.51% of subjects from non-generic and 6.92% subjects from generic pharmacies claimed that their source of information about the drugs was from the internet and advertisement. According to the survey, 22.93% of consumers from non-generic and 17.69% of consumers from generic pharmacies were advised about OTC medication from their peers. The difference in the proportion of information received by the consumers from the doctor about the drugs in the non-generic and generic group was statistically significant (Z = 2.104, p < 0.017) as indicated in Figure 3.

**Frequency of visit to the pharmacy**

42.67% subjects in the non-generic group and 36.00% subjects in the generic group visited the pharmacy for OTC drugs based on their requirement. 57.33% and 64.00% of subjects from the non-generic and generic group respectively visited the pharmacies for OTC drugs once a month.

**Buying medicines without a prescription**

It was observed that 61.33% of consumers of generic pharmacies thought buying medication without prescription was economical on the contrary, only 46.67% interviewed at the non-generic stores agreed with the same. The difference in the proportion of consumers assuming that buying medications without a prescription is economic in a non-generic and generic group, and were statistically highly significant (Z = 2.580, p < 0.005).

34.67% and 21.33% of subjects in the non-generic and generic group respectively, received the antibiotics without prescription.

**Awareness about the safety profile of the drug**

It was noted that 78.67% of consumers in the non-generic and 77.33% consumers in the generic group had an opinion that the usage of OTC drugs is safe. Only 32.67% of subjects in the non-generic and 21.33% of subjects in the generic group were aware of the side effects of the OTC drugs. The difference in the proportion of the awareness of the side effects of the drugs among the subjects in the non-generic and generic group was statistically significant (Z = 2.266, p < 0.012).

Whereas a previous study suggested that most of their subjects thought the use of OTC drugs to be not wholly safe (Abraham et al., 2015).

Subjects were counselled regarding the appropriate usage and side effects of the OTC drugs that they had purchased.

**Commonly stocked medicines**

In this study analgesics and antipyretics were the regularly stocked category of OTC drugs followed by GI drugs, anti-histamines and supplements. Another study also shows alike finding, that pain killers and fever medications were the most frequently stored drugs (Abraham et al., 2015). Stocking of OTC medications among the consumers of generic pharmacy (62.67%) was found to be higher as it was available at cheaper rates compared to a non-generic pharmacy (32.67%), the difference in the proportion of consumers stocking OTC medications at home in the non-generic and generic group was statistically highly significant (Z = 5.660, p < 0.001). The results obtained are discussed above has mentioned in Table 2.

**Patient counselling**

Around 82% of the consumers in the generic pharmacy and 43% in the non-generic pharmacies were counselled regarding drugs, disease, and lifestyle modification. Awareness about the side effects of
the drugs was imparted and information about the complications if the drug is misused.

Cost-minimization

The study shows that cost-minimization based on the unit price of the drugs was analyzed and it was found that generic drugs were more cost-effective than the non-generic drugs (median=24.5). The generic’s price/10 tablets of paracetamol were INR 5.35, whereas the same substance’s branded drug was priced at INR 39.5. Generic Ranitidine was priced at INR 3.65 whereas branded Ranitidine was priced at INR 7.68. Many more drugs were compared for unit price in this study and are mentioned in Table 3. A similar study illustrated that a comparable finding which mentioned that increased awareness about generic OTC medicines could result in substantial cost saving (Kohli and Buller, 2013).

Miscellaneous

50% of the subjects in the non-generic group preferred buying drugs of a particular brand, and 42% & 48% of subjects in the non-generic and generic groups respectively preferred to use home remedies or alternate systems for treating ailments as shown in Table 2.

CONCLUSIONS

This study on the dispensing pattern of OTC medication in community pharmacies revealed that analgesics were the most dispensed drugs over the counter, followed by GI drugs, analgesics & anti-histamines and supplements. The commonly reported complaints about the purchase of OTC drugs were pain followed by respiratory, GIT, dermatological problems and multivitamins & minerals deficiency. Patients were counselled according to their complaints and medications. Since the study was conducted both in generic and non-generic pharmacies, it was found that the visit to non-generic pharmacies was more. A comparison of the unit cost of drugs was analyzed. It was found that generic drugs were more cost-effective than non-generic drugs, and elderly preferred to visit generic pharmacy as it was most beneficial.

ACKNOWLEDGEMENT

The authors are grateful to all the pharmacists of Lifecare Medical Centre, Sri Guru Raja Pharma (Kumaraswamy Layout), Suman medicals (Banashankari), and Janasudhah (Basavanagudi) for their constant support throughout the data collection for our project. We also would like to express our sincere gratitude to Prof. Dr.Ganagaboraiah & Ms Seema Rathore for their guidance.

Conflict of interest

The authors declare that they have no conflict of interest for this study.

Funding support

The authors declare that they have no funding support for this study.

REFERENCES

Abraham, T., P., S., D., S., S. S. 2015. Study on Self Medication Patterns and Perspectives of Over-the-Counter (OTC) Drugs. International Journal of Pharma Research & Review, 4(11):30–34.

Anderson, J. 1973. Demographic Factors Affecting Health Services Utilization: A Causal Model. Medical Care, 11(2):104–120.

Aronson, J. 2004. Over-the-counter medicines. British Journal of Clinical Pharmacology, 58(3):231–234.

Bond, C., Hannaford, P. 2003. Issues Related to Monitoring the Safety of Over-The-Counter (OTC) Medicines. Drug Safety, 26(15):1065–1074.

Cooper, R. 2013. I can’t be an addict. I am.’ Over-the-counter medicine abuse: a qualitative study. BMJ Open, 3(6):2913–2913.

Cybulski, M., Cybulski, L., Krajewska-Kulak, E., Orzechowska, M., Cwalina, U. 2018. Preferences and attitudes of older adults of Bialystok, Poland toward the use of over-counter drugs. Clinical Interventions in Aging, Volume 13:623–632.

Hall, G. C., Sauer, B., Bourke, A., Brown, J. S., Reynolds, M. W., Casale, R. L. 2012. Guidelines for good database selection and use in pharmacoepidemiology research. Pharmacoepidemiology and Drug Safety, 21(1):1–10.

Hughes, C. M., McElnay, J. C., Fleming, G. F. 2001. Benefits and Risks of Self Medication. Drug Safety, 24(14):1027–1037.

Kohli, E., Buller, A. 2013. Factors Influencing Consumer Purchasing Patterns of Generic Versus Brand Name Over-the-Counter Drugs. Southern Medical Journal, 106(2):155–160.

Nagaraj, M., Chakraborty, A., Srinivas, B. N. 2015. A study on the dispensing pattern of over the counter drugs in retail pharmacies in Sarjapur area, East Bangalore. Journal of Clinical and Diagnostic Research: JCDR, 9(6).

Parthasarathi, G., Nyfort-Hansen, K., Nahata, M. 2012. A Textbook Of Clinical Pharmacy Practice. 2nd ed. volume 21, pages 20–21, Hyderabad: Uni-
Abuse of over-the-counter medicines: a pharmacist’s perspective. *Integrated Pharmacy Research and Practice*, Volume 6:1–6.

Shrotri, R., Nayak, N., Rajput, M. S. 2011. A study on over the counter drugs in retail pharmacies in Indore city. *Der Pharmacia Lettre*, 3(3):133–138.

Spivey, P. 2012. Ensuring Good Dispensing Practices. In: Martha Embrey, Marian Ryan & Laura Glassman eds. MDS-3: Managing Access to Medicines and Health Technologies: MSH.

Stosic, R., Dunagan, F., Palmer, H., Fowler, T., Adams, I. 2011. Responsible self-medication: perceived risks and benefits of over-the-counter analgesic use. *International Journal of Pharmacy Practice*, 19(4):236–245.

Tylenol 2020. Johnson & johnson consumer inc, Mcneil consumer healthcare division, Accessed on: 2020-04-06.

Wazaify, M., Al-Bsoul-Younes, A., Abu-Gharbieh, E., Tahaineh, L. 2008. Societal perspectives on the role of community pharmacists and over-the-counter drugs in Jordan.