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BUYING DECISION BETWEEN OFFLINE AND ONLINE MEDICINES – A COMPARATIVE STUDY

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ABSTRACT

E-commerce in healthcare and pharmaceuticals is profoundly soaring, which is helping in expansion of both the online and offline availability of choices of purchasing medicines to the consumers. This step is eventually helping the Indian pharmaceutical Industry to cater to the needs of the consumers in a broader manner. The convenience provided by e-medicines is enabling the drift of the patients towards the online ordering modes from the offline ones, especially after the heightened users of World Wide Web now. More percentage of people have started using this advanced practice frequently like the elderly, disabled and the ones living in remote areas but still there is a prodigious segment of society which is dependent on the traditional way out of getting medicines from pharmacies and relies on it. There have been observed certain instances of fake and incomplete information being displayed at these sites of "Internet Pharmacies" and applications about the drugs and medicines rendering them unethical. Moreover, it can be seen that the Internet prescribing cannot replace the actual physician's treatment of the patient, because patients still are at risk of irrefutable drug interactions and side-effects with the online treatment methodology. **Purpose:** Attempt to investigate the buying decision between offline and online medicines in India and is there any risk associated with buying medicines through these sources. **Design/Methodology:** This study explored the behaviour of people towards the online pharmacies and the physical pharmacies. Which among them, people tend to prefer for their regular medicine purchase in whole of the India. The study is conclusive in nature and a casual research design was used to identify the behaviour and preference of people towards the online pharmacies and the physical pharmacies. The study had a Qualitative angle as well, as the behaviour of the buyers/ consumers is also involved. Descriptive nature of study is there to analyse and understand the behaviour and factors that led to this preference of consumers.

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INTRODUCTION

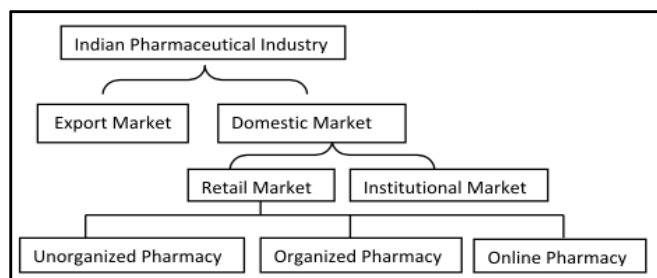
India is one of the largest generic drug distributors in the world. Indian pharma industry fulfils the need of 40 percent of various vaccines globally. Moreover the 40 % of USA and 25% of UK generic medicines demand is catered by the Indian pharma industry (ibef, 2019). India is recognized as the core pharmaceutical drug exporter worldwide. The country also has a large scale of scientists, researchers, pharmacists, manufacturers and technical engineers who have potential to push the industry few steps ahead from the current position. With the advent and propagation of globalization retail era it

has become very tough to sustain for a longer period of time not only in the global market but also in the national market. The pharmaceutical industry is also one of the industries which is facing the harsh competition in global era as here, In the drug selling process In India takes place through two different modes: offline mode and online mode. In offline mode the medicines are sold out through physical counters such as retail shops, pharmacy, hospitals and mega malls but on the other hand there is an online mode which operates on the principle of mobile application, websites tele calling etc. Hence, these are the two different ways through which we get the required medicines. Nowadays pharmaceutical sector has widened its scope and is gradually acting as an advanced fast-moving consumer goods industry. The consumers are getting everything under a single canopy whether it's fruits,

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vegetables, garments and now the medicines too. Indian pharma industry is fulfilling the needs of worldwide population by exporting the branded as well as generic medicines and it also caters to the needs of Indian population by domestic distribution. In domestic distribution process, it is achieved through retail market and institutional market such as Sun pharma, Medlife, Himalaya, Dabur etc. Retail marketing further proceeds with the help of unorganised pharmacy i.e. local pharmacy stores or chemist shops. In India there is high number of such unorganised stores. Now when it comes to the point of distribution through organised stores, Religare pharmacy, Apollo pharma are the big tycoons in this particular segment. Online pharmacy is the new way of purchasing medicines online in Indian market. i.e. 1mg, MedPlus, Medlife, pharm etc.



Source- Primary source

Figure 1. Distribution of medicine in the Indian domestic pharmaceutical industry

Indian Pharmaceutical Industry: On the basis of type, the Active Pharmaceutical Industry (APIs) holds the largest market segment. As of 2016, India is the third largest global generic API merchant market with a 7.2 percent market share. The Indian pharmaceutical industry accounts for the second largest number of Abbreviated New Drug Applications (ANDAs) and is the world's leader in Drug Master Files (DMFs) applications with the US. This is supported by the fact that Indian companies have received 304 Abbreviated New Drug Application (ANDA) approvals from the US Food and Drug Administration (USFDA) in 2017. The country accounts for around 30 per cent (by volume) and about 10 per cent (value) in the US\$ 70-80 billion US generics market (KPMG, n.d.).

Major contributors: The major players in the Indian pharmaceutical market are Sun Pharma, Dr. Reddy's, Lupin, Cipla, Aurobindo, Cadila, Glenmark, Torrent Pharma, Alkem Lab, Divis Lab, Piramal Enter, Ipca Lab, Glaxo SmithKline, Abbott India, Biocon, Jubilant life, Sanofi India, Wockhardt, Pfizer, Dr Lal Path Lab, Merck, Hikal, Novartis India and Eris Life. In 2017, the pharmaceutical sector in India was valued at US\$ 33 billion (BMI, n.d.). But, it is expected that in the upcoming years the country's pharmaceutical industry will expand at a CAGR of 11.3 per cent. It is expected to reach US\$ 55 billion by 20. India's pharmaceutical exports stood at US\$ 17.27 billion in 2017-18 and is expected to rise to US\$ 20 billion by 2020 (Dubey, Sharma, Gupta, Dubey, & Dubey, 2011). Looking at India's biotechnology industry which comprises of bio-pharmaceuticals, bio-services, bio-agriculture, bio-industry and bioinformatics – this too is expected to grow at a rate of 30 per cent annually and reach US\$ 100 billion by 2025. Biopharma, comprising vaccines, therapeutics and diagnostics, is the largest sub-sector of Indian Pharmaceutical Industry which contributes to nearly 62 per

cent of the total revenues at Rs 12,600 crore (US\$ 1.89 billion).

Research Objectives

- To identify the factors that influence people or customer to buy medicines offline;
- To find out the regulatory bodies that regulates the e-pharma;
- To evaluate the willingness of people to buy the medicines offline over online;
- To find out the factors that restrict the customers to buy medicines online;
- To study the convenience of offline medicines over online medicines;

Research Reviews

(Raghvan, 2016) found that around 68% of the people surveyed buys medicine offline or from brick-and mortar pharmacies, among which 50% of them buy medicine without prescription and approximately 90% are open to buy medicine from online or e-pharmacies. (Raghavan, Prabha, & J, 2018), A survey shows that 61% people prefer buying medicine online, but due to regulation, Online selling is illegal, whereas Aziz who started his own online pharmacy said that it is not possible to deliver 100% of the medicine in any way, thus offline rules over online. (Reddy, 2017) discovered the risk, concerns and challenges associated with selling medicine online. Some of the concerns comprised of illegal or unethical online pharmacies, source of acquiring the medicine, substitution of medicine as per availability, unable to process of order due to absence of valid prescription. At last online are pharmacies are facing high competition from offline counterparts. (Desai, 2016), found that though online purchase of medicine provides lower prices to the customers because of the reduced transactional cost and the cost of obtaining the medicines but online pharmacy does include fraudulent practices which includes sensing fake medicines, substitute brand expired or adulterer medicine. Thus, different states are approaching Drug controller General of India to curb the illegal online sale of medicines. (King & Julia, 1999), believed that teaming both the online and off-line retailers will be able to best serve the customer needs. As in if a customer is unable to find any medicine online on the website, it will then mail the concern to the retailer, it will then forward it to the in-store personnel and later it would sent to online shopper for approval.

(Tripathi, 2009), found that building relationship with the customers leads to customer loyalty towards the brand in general and with the store in particular, this can be achieved by better understanding the need, which is possible better with personal touch which is ultimately possible in an offline pharmacy store. (Newswire, 2017), it was seen that majority of the consumers and customers were unaware about the risk associated with their healthcare providers and had no knowledge about the tools to verify the safety of online pharmacies. (Sirhindi, 2010), it is concluded that both online and offline medicine stores influence the impulsive behaviour as the customers are increasing and due to global access it is becoming quite evident for such aspects to take place, though both the markets have different sets of target customers. (Hall & Antonopoulos, 2015), the research is on illegal e-trade of medicine online and how such traders adopt such practices in

their trade. They explained the practices which the traders adopt to trade the medicines illegally on the internet. (Xiaofei Zhang, 2017), it found that online services are just an extension of the offline services provided by the pharma stores. In the research it stated that the E-pharma stores just sell the medicines and is the same service that is being provided by the normal medical shops. (Makoul, Zick, Aakhus, Neely, & Roemer, 2010) During the clinical clerkships communication process medical student faced the difficulty from online forum. Patients were not satisfied with the online prescription. (Barrenberg & Garbe, 2015) found that over the counter drugs (OTC) used by the customers and their safety issues. Drugs consumption and risk perception are related to OTC drugs. They further said that the OTC drugs are not allowed to be sold online as they fall in schedule H drugs. (Wickramasuriya & Faghih, 2017) With the rapidly growing popularity of online delivery of health services through internet i.e. online health services have become an (OHS). Online healthcare services is an extension of its offline services (Internet purchase of pharmaceuticals: A review of regulatory experience, 2001) Concluded that E-pharmacies should be operated and licensed under the same regulatory system as traditional pharmacies. However, many countries have not yet guaranteed the implementation of regulations those of pharmacy inspections which include drug preparation and dispensing facilities. There is the need for the development of regulations and guidelines for online prescription of medicines by the doctors even though doctors have not met the patient.

(Desai, 2016) An online pharmacy or e-pharmacy is an internet pharmacy through which vendors sell medicines which includes both legitimate and illegitimate pharmacies. According to Indian pharmacy council medicines can only be sold by the registered retail pharmacy. Online pharmacy gives us ample of discounts with door step delivery. Consumer awareness is an important factor of e-pharmacy. (Andrews, 2002) found that there are certain rules and regulations in the online medicinal distribution. There are certain legal and ethical issues around their utilisation, focusing on the relevant players such as govt, patients and doctors. (Mary, 2017) found that healthcare facilities in India are still not at par compared with developed nations. Indian govt is rigorous towards price control of pharma products and this becomes a major obstacle for global players to enter in India market. India drug act and drug policy has blip up in terms of new dimension to Indian pharmaceutical industry. (Pati, 2017) found that the behavioural issues arise at the end of consumers/physicians and non-behavioural issues occur in pricing and delivering pharmaceutical products. He also discussed about the mathematical technique of pharmaceutical product supply chain management. (Roger Jeffery, 2016) paper talks about how the pharmaceutical companies distribute their medicines through clear and forwarding agents (CFA) and then stockiest to retailers and finally to the customers after manufacturing of medicines (Gani, April, 2016) found that the distribution process includes all the activities that enables the transfer of tangible as well as intangible goods from one place to another place. Pharmaceutical distribution is slightly different from other goods distribution system. (Levin, 2017) found that in developing nations such as India, China, Brazil etc. the health issues at lower end i.e. people (who belongs to below poverty line) is very common. The problem of sanitation, nutrition and primary health care are always a subject to think. Essential medicines are an important concern for the govt. In Indian

context there is a list of 340 essential medicines. (Crawford, 2003) Concluded that internet pharmacies cannot completely replace the traditional retail pharmacies but on a contrary it adds value to the retail pharmacies by providing patients with ease of access to prescribed drugs. (Mendoza, 2015) Concluded that medical e-commerce requires e-oversight and great awareness among public. This may be executed through, regulated, approved, and inspected e-suppliers, better attribution of property rights, more prominent exposure in the different media to stress the perils of utilizing unregistered providers, and the dynamic collaboration of the primary Internet specialist organizations to block rogue drug stores and doctors online. (Internet purchase of pharmaceuticals: A review of regulatory experience, 2001) Said that online drug stores ought to be authorized and should work under the same administrative framework as from traditional drug stores. But, numerous nations still need to build up their enactment and assurance of the execution of directions which ought to likewise cover drug store examinations, including those of medication planning and apportioning offices and of controlled substance records. (Gandhi & Nguyen-Khoa, 2001) Concluded that as there is higher prevalence of chronic disease, the elder population gains more from internet pharmacies. As the drugs have the potential to harm without appropriate selection and monitoring, they are supposed to be prescribed to the patients by the physicians. Now-a-days internet has a major influence on people due to which dangerous events have increased, especially in demographic sector. The federal and state government faces challenges in imposing implications of regulating prescription drug commerce on web. (Gurau, 2005) Founded that systematic categorization needs development so that the decision-making process could take place more precisely including the shopping behavior for each customer segments.

People have the fear of making online E-transactions but also there are a lot of people who are satisfied with the E-pharmacies. It is said that success of online pharmacies is directly proportional to their market segment by understanding the needs and preferences of the customers. (Spain, Siegel, & Ramsey, 2001) Said that the online distribution of pharmaceutical products raised serious legal and regulatory issues which included government, agencies, organizations, etc. would regulate the activities of distribution. The paper also talked about the current regulatory environment for marketing prescription only drugs and its distribution across all borders. (Quality of Online Pharmacies and Websites Selling Prescription Drugs, 2011) Concluded that to minimize the risk and enhance the benefit a 2-level approach is useful as online pharmacies are the trending phenomenon that has started to spread in spite of facing regulations lined to intrinsic nature of web and its global dimensions. The first level should be focusing on the rules and regulations at an international level whereas the second level talks about an individual who should aim to increase literacy, health choicest, etc.

RESULTS AND DISCUSSION

Table 1. Age group of respondents

Age group	Frequency	Percent
21-25	49	40.8
15-20	39	32.5
above 30	22	18.3
26-30	10	8.3
Total	120	100.0

Source- Primary source

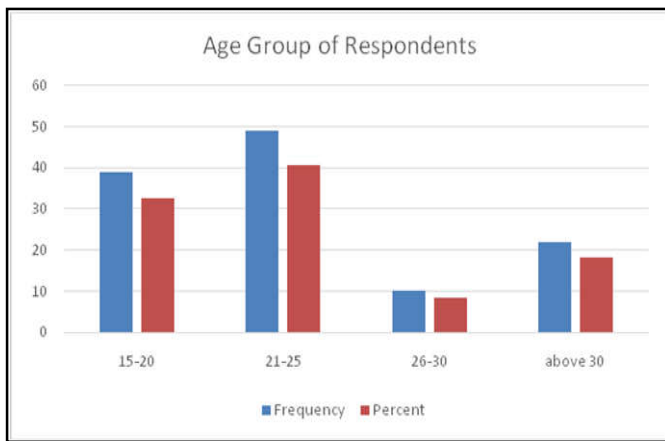


Figure 1. Age group of respondents

The demographics of the respondents in the study is categorized and tabulated, to better understand the scope of the research. This data will help make more precise inferences for the study in relation to which age group, gender, etc. to target or which segment is more influenceable by scent marketing. The majority of respondents are between the age groups 15-20, 21-25, 26-30 and above 30, with the highest being in the 21-25 age group. Thus, the main respondents are between 15 to 30 years old. The data recorded from the survey is tabulated above.

Table 2. Gender of respondent

Gender	Frequency	Percent
Female	60	50.0
Male	60	50.0
Total	120	100.0

Source- Primary source

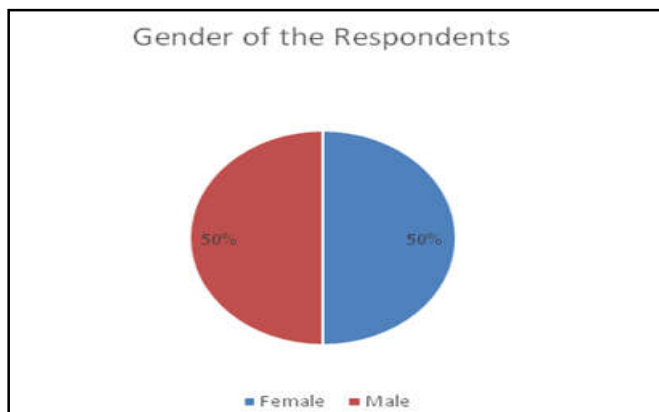


Figure 2. Gender of respondents

The number of respondents, Gender wise is equally divided. The correlation made using gender will provide insights on which gender is more conscious and aware. It will also show which gender is more likely to make a purchase decision.

Table 3. Occupation of the respondents

Occupation	Frequency	Percent
Student	86	71.7
Employed	15	12.5
Homemaker	10	8.3
Self employed	9	7.5
Total	120	100.0

Source- Primary source

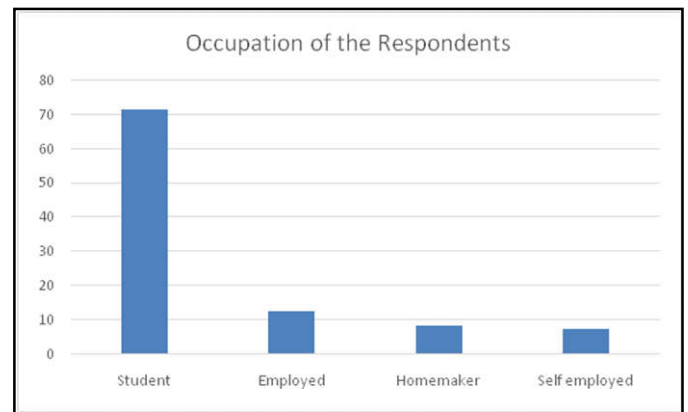


Figure 3. Occupation of the respondents

Majority of the respondents in the study are either employees or students. Both these categories combined constitute 84.2% of the respondents in this study. This demographic can help associate which group of individuals who all are the frequent buyers of buying medicines either online or offline. The minority categories in the study are from Homemaker and Self-employed, with each category having just 8% approx. each in the study. This is because comparatively there are fewer people in these categories as opposed to people working full time jobs and those pursuing their education.

Table 4. Mode of buying Medicines

Different Modes	Frequency	Percent
Online mode	20	16.7
Offline mode	100	83.3
Total	120	100.0

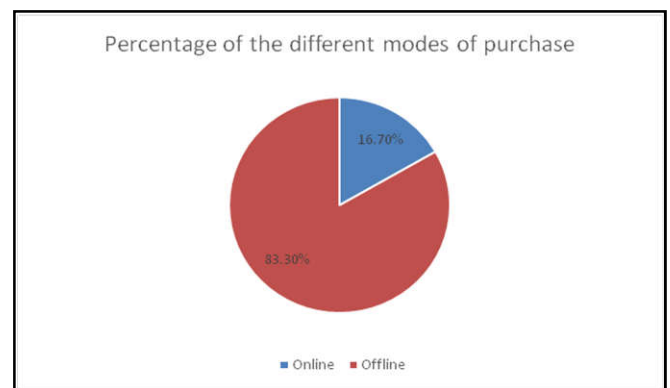


Figure 4. Mode of buying Medicines

The Majority of the respondents opted that they are buying medicines from the Offline mode 100 respondents i.e. 83.3% of the total responds are in the favor of offline mode of buying medicine which indicates that they are used to buying medicines from retail stores rather than choosing online mode of buying medicines. 20 respondents out of 120 selected Offline mode of buying medicines which is 16.7% of the total number of respondents.

Table 5. Descriptive analysis of factors

Factors	n	Mean	Std. Deviation
Trust Factor	120	.53	.501
Convenience	120	.33	.470
Non-Availability	120	.25	.435
Others	120	.11	.312
Price Factor	120	.05	.219
Total	120		

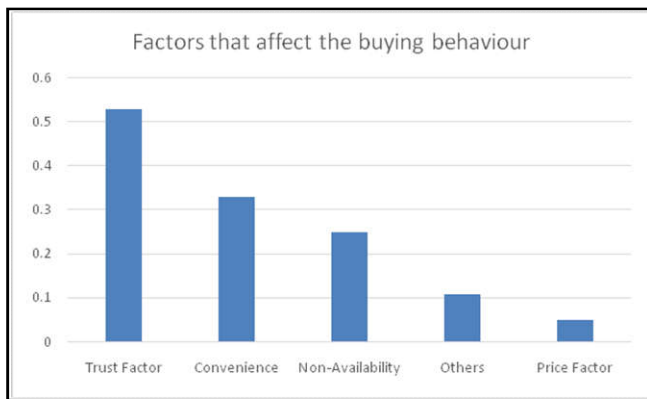


Figure 5. Descriptive analysis of factors

The above table explains about the factors of buying medicines from the different modes. It explains about the majority of the respondents buying medicines from offline because they feel that offline stores are trustworthy rather than buying from online portals or apps.

respondents are less bothered about the price of medicines. They simply buy the medicines from the stores even though they are getting the less price from online stores. Here we have the sample size of 120 respondents in which we have only six scale variables i.e. we did mean value analysis. People very conscious towards medicines purchases as it shows the highest mean value i.e. 4.29 that indicates that people are tends to buy offline medicines because when it comes to buy medicines they are very careful while buying the medicines from the pharmacy stores. People believe that buying medicine over online is not trustworthy, this shows the least mean value i.e. 3.19 which indicates that people are not showing trustworthiness when it comes to purchasing medicines. Given table shows the Cross-tabulation between non-preference of buying medicines online and the age groups of the respondent. Trust factor is the highly effective variable opted by the participants i.e. 60% of the 15-20 age group which indicates that people are highly influence with the trust factor by medicines from the offline stores are trustworthy.

Table 6. Factors that affect the buying behaviour

Factors	Mean	Std. Deviation
I am very conscious towards medicines purchase	4.29	0.703
I look for the medicine I want to buy	4.22	0.75
I am aware of the e- medicine	4.01	0.934
I believe that buying medicine on medical store more trustworthy rather buying from online apps or websites	3.8	1.062
I believe that buying medicine offline make more sense over buying medicine on online websites or apps	3.7	1.021
I believe that buying medicine over online not trustworthy	3.19	0.994

Table 7. Cross-tabulation between non-preference of buying medicines online and the age groups

Age/Buying factors	15-20		21-25		26-30		above 30		Chi-square test values	
	n	Percent	n	Percent	n	Percent	n	Percent		
Convenience	13	26.0%	15	23.8%	5	35.7%	6	24.0%	1.762	.623
Price Factor	0	0.0%	3	4.8%	2	14.3%	1	4.0%	6.929	.074
Non-Availability	3	6.0%	14	22.2%	3	21.4%	10	40.0%	11.607	.009
Trust Factor	30	60.0%	26	41.3%	4	28.6%	4	16.0%	20.358	.000
Others	4	8.0%	5	7.9%	0	0.0%	4	16.0%	2.478	.479
Total	50	100.0%	63	100.0%	14	100.0%	25	100.0%		

Table 8. Cross-tabulation between Occupation and the Mode of purchase

Occupation/ mode of buying	I buy medicines more from				Total	Chi-square test values	
	Offline mode		Online mode				
	n	Percent	n	Percent	n	Percent	
Homemaker	9	9.0%	1	5.0%	10	8.3%	32.054a p = 0.000
Self employed	3	3.0%	6	30.0%	9	7.5%	
Employed	8	8.0%	7	35.0%	15	12.5%	
student	80	80.0%	6	30.0%	86	71.7%	
Total	100	100.0%	20	100.0%	120	100.0%	

Table 9. Cross-tabulation between no-preference of buying medicines online and the Mode of purchase

Mode of buying/Buying factors	Offline mode		Online mode		Chi-square test values	
	n	Percent	n	Percent		
Convenience	35	28.5%	3	11.5%	5.236	.073
Price Factor	3	2.4%	3	11.5%	5.072	.079
Non-Availability	21	17.1%	9	34.6%	5.358	.069
Trust Factor	58	47.2%	5	19.2%	8.423	.015
Others	6	4.9%	6	23.1%	18.171	.000
Total	123	100.0%	26	100.0%		

The second important factor is convenience buying medicines from nearby stores is highly convenient rather than online stores. In offline stores whenever we require we can buy the medicines which is also called on time availability but in online mode after ordering we need to wait for the delivery. The least important factor is price factor that indicates that

The age group 21-25 shows that they are also highly influence with the trust factor on another hand the age group of 26-30 indicates that 35.7% of the respondent buy medicines from offline modes. The respondents of age group above 30 buy medicines from online mode because of the non-availability of the medicines from the offline stores. The age people above 30

diagnosed with different diseases so they require different medicines which is normally not available in a particular shop. So, because of that they prefer buying medicines from online platform. The above table shows the cross tabulation of the occupation and the mode of purchase of the respondents. Out of the total 120 respondents, 80% students who were among the respondents preferred buying medicine from store rather than purchasing from online platforms, whereas self-employed and employed respondents, representing 30% & 35% respectively preferred buying more medicine from online platforms and the least response was recorded as 5% from the respondents of homemaker in terms of preference in buying medicine from the online platforms. The above table shows the cross tabulation between the factors of buying medicines and the different modes of buying medicines i.e. online and offline mode. Out of the total 120 respondents, 47.2% prefer offline mode because of the trust factor associated with it., whereas, convenience constitute the second highest preference for offline mode of purchase of its immediate availability. On other hand 34.6% online participants buying medicines from online platforms because of the Non-availability of the medicines from the nearby offline stores perhaps, online mode is the only option for them. Last looking at the price factor we can conclude that neither offline and online customers are affected by the price factor when it comes for preference of buying the same.

Data Collection

The data collection for the study involves collection of primary and secondary data. Primary data was collected by undertaking survey with 120 customers randomly selected in Christ University and Shelter Apartments, Victoria Layout. The questionnaire was printed in a defined order including multiple choice subjective questions. Also, nominal (open ended and closed ended questions), ordinal and scaling techniques like Likert questions were used in the questionnaire. The consumers were then asked to respond in the places provided in the schedule. Consumers with different demographics (gender, age group, education level, monthly household income and occupation) were interviewed for the data collection.

Conclusion

It was observed that in spite of the various major advancements in technology and internet services and easy availability of e-medicines, major segment of the Indian population still prefers to go to retail pharmacies to purchase medicines and certain healthcare products. It reflects more health conscious and traditional mindset and outlook of the people (despite of the advancement in other sectors of life) particularly while deciding about the mode of purchasing medicines- online or offline. People prefer offline over online because of various factors like convenience, trust, easy availability. In some cases where the medicines are not available in retail pharmacies, people order them online otherwise they like to take advantage of offline mode only. Apart from this, even if low price medicine is available in the online mode, masses still prefer to purchase the same medicine from any retail store if it is available there. This reflects people have more careful attitude while buying medicines and don't trust these online pharmacies and applications where online patient consultations are done. Moreover, the satisfaction provided to the consumers and patients by the counseling and

interaction of pharmacist or druggist or doctor is irreplaceable. The incomplete directions of use, dosage, warning of side-effects and drug interactions that are labeled on these healthcare products, medicines or drugs needs to be well explained by qualified personnel like a doctor or pharmacist. This factor gets skipped when one orders this stuff from various web services and online market applications. This satisfaction and trust factor dominate over the other factors of choosing offline medicines over e-medicines.

Methodological Limitations: This study is limited to Bangalore, India only as we took the sample of local area i.e. nearby area of Christ university and students inside the Christ university we also did the survey in SHELTER Apartment Victoria Layout Bangalore, India.. In other words the study was conducted on a smaller sample size and demographics were not evenly selected lack of data, as research for such a sample and objectives were not conducted and thus further research is needed to be conducted with a designed method for gathering data. Due to time constraint the study was conducted on a similar sample with a mix with other demographics. As in our case, the majority respondents belonged to the student category and then followed by other like homemaker, employed and self-employed respondents. As our objective was to target families majorly.

Recommendations

Manufacturing and expiry dates of medicine: In the case of online purchase of medicines, customers often find it risky as they do not get to touch and see the product. A very important aspect is the manufacturing and expiry dates of medicines in both the cases of online and offline purchase of medicines. Hence, it is recommended that the manufacturers and sellers make it a point to mention the manufacturing and expiry dates on the products under both the platforms. In case of online purchase, this vital information might not be readily available at times. Therefore the buyers must make it a point to check on the manufacturing and expiry dates and get a hold of this information from the sellers if it is not available.

Packaging and storage of the medicines: The medicines may not have been stored properly, such as in a warehouse without necessary temperature controls, which may cause the medicine to be ineffective in treating the disease, may prove to be harmful for the condition for which the customer is buying the product. Along with this, the packaging of the product is also a very important factor. Thus, it is recommended that the manufacturers and sellers, package the products properly that helps it in being durable and store the products in proper conditions so that they do not turn out to be harmful. Also the customers must check the condition of the product while buying and upon receiving the product.

Branded and generic medicines: In case of Generic and branded medicines, often the active ingredient is mostly the same but some customers believe that the salt is lesser in generic medicines. Some customers have more trust on branded medicines, thus they prefer to buy them. While some customers believe that the price of generic medicines is comparatively lower, thus they prefer generic medicines. It is recommended that the customers are aware of the product they are purchasing (online or offline) and its ingredients be it branded or generic and not buy some medicine only because it poses itself as branded but lacks quality or on the other hand,

customers must not buy any medicine which claims itself to be cheaper than other but might be harmful.

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