

E-pharmacy + last-mile delivery: The Impact of E-Pharmacy and Telemedicine on the Transformation of the Healthcare Landscape in India and the Societal Adoption of Emerging Technological Paradigms.

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Date of Submission: 11-03-2024

Date of Acceptance: 21-03-2024

I. CHAPTER: 1

Introduction: E-Pharmacy in India: A Revolution Hinged on the Last Mile Imagine a bustling Indian city: skyscrapers scraping the sky, traffic buzzing, lives lived at a frenetic pace. Now, picture a serene village nestled in the Himalayas, with time flowing like the rivers that carve the valleys. These diverse landscapes define India, and both share a growing phenomenon - the transformative power of e-pharmacy.

However, the success of e-pharmacy hinges on a critical final leap: last-mile delivery. Bridging the gap between online orders and patients' doorsteps is no simple feat. From navigating congested city streets to traversing remote mountain paths, the last mile in India throws up unique challenges and demands innovative solutions.

In bustling metros, e-pharmacy contends with traffic snarls, dense populations, and a complex delivery landscape. Algorithms juggle orders, scooter-borne riders Iave through chaos, and rooftop drones explore aerial shortcuts. The aim? To deliver vital medications quickly and efficiently, ensuring seamless access to healthcare amidst the urban heartbeat.

But the story unfolds differently in rural India. Patchy internet connectivity, unbanked populations, and limited infrastructure paint a different picture. Here, partnerships with local Kirana stores become lifelines, cash-on-delivery options a necessity, and hyperlocal delivery models a key to success. Building trust through community engagement and offering vernacular content become as crucial as speedy delivery algorithms.

The last mile in Indian e-pharmacy is not

just a logistical challenge; it's a gateway to healthcare equity. By overcoming diverse hurdles and embracing innovative solutions, e-pharmacy has the potential to revolutionize healthcare access across the nation, delivering medicines not just to doorsteps, but to the very heart of hope and Ill-being for millions.

This is just a glimpse into the fascinating world of last-mile delivery in Indian e-pharmacy. If I'd like to delve deeper into specific aspects - tech solutions, rural challenges, or regulatory frameworks.

: Objective: To identify the extent of:

1. **Adoption:** of E-pharmacy among people, as change in usage from traditional ways to online mode.
2. **Utilization:** of telemedicine and e-pharmacy services among different age groups and locations. Eg. Urban and Rural regions.
3. **Segments:** Different users among markets of different ages. Eg. 15-60.

: Research gap: A gap exists in understanding the intricate interplay between e-pharmacy, telemedicine, and the traditional brick-and-mortar pharmacy and medical market structures in India, including the regulatory hurdles, consumer preferences, and long-term sustainability of these emerging models within the Indian healthcare ecosystem.

: Purpose: The purpose of this research is to comprehensively investigate and analyze the

multifaceted influence of e-commerce and telemedicine on the healthcare sector in India. It aims to assess how these emerging technological paradigms are reshaping healthcare accessibility, affordability, and delivery, and to understand how society is embracing and adapting to these transformative changes.

Scope of research:

Electronic health records (EHRs) and electronic prescribing (e-prescribing): Integration with these technologies to effectively manage patient care.

Artificial intelligence (AI) and big data: drug-drug interaction analysis, and personalized medicine approaches.

Specialization: Pharmacists may specialize in geriatrics, pediatrics, or oncology.

Entrepreneurship: Opportunities for opening independent pharmacies or providing consulting services will continue to exist.

Developing effective models for integrating pharmacists into telemedicine services.

Exploring the use of AI in medication safety and personalized medicine.

Quality healthcare services, particularly in underserved communities.

ABSTRACT:

Understanding challenges and opportunities: The abstract highlights the diverse challenges faced in urban and rural settings, prompting policymakers to design targeted solutions and create regulations that foster innovation while ensuring safety and equity.

Supporting innovation: Highlighting the potential of technologies like drones and local partnerships can encourage policymakers to explore pilot programs and create regulations that facilitate their responsible implementation.

Promoting collaboration: The emphasis on government-industry collaboration can encourage stakeholders to work together to address infrastructure gaps, financial inclusion, and language barriers.

Identifying potential markets: The abstract showcases the vast potential of e-pharmacy in both urban and rural India, guiding businesses and investors to identify promising target markets and tailor their solutions accordingly.

Evaluating tech solutions: Highlighting the need for different tech solutions in urban and rural areas can inform businesses' investment decisions and development efforts.

Understanding regulatory landscape: The mention of the evolving regulatory landscape prompts

businesses to stay informed and proactive in navigating policy changes.

E-pharmacy is booming in India, offering convenient access to medications across diverse landscapes. However, "last-mile delivery" - getting medicines to patients - presents unique challenges. In bustling cities, complex logistics involve algorithms, scooter riders, and even drones. Rural areas require different solutions, like partnerships with local stores, cash-on-delivery, and community engagement. Overcoming these hurdles, e-pharmacy can revolutionize healthcare access, delivering not just medicines, but hope and well-being to millions. This glimpse invites a deeper exploration of specific aspects like technology, rural challenges, and regulations.

II. CHAPTER 2:

Literature Review:

Estimating Risk Factors for Patients with Potential Drug-Related Problems Using Electronic Pharmacy Data. 1999

Author- Sune Faurschou Isaksen

For the parameters of the number of medications, daily dosages, modifications to the medication regimen, and number of chronic conditions, the Spearman rho rank order correlation coefficients varied from 0.63 to 0.91 (all significant, $p = 0.0001$). The number of chronic diseases was underestimated and the number of daily doses was inflated by the computer programme. In terms of patient noncompliance, there was little agreement ($Kappa = 0.38$) between the computer programme and the chart review; the computer was more likely to suggest that a patient was noncompliant. The computer program and chart review showed a good degree of agreement ($Kappa = 0.83$) when it came to the existence of a medicine requiring TDM. The computer program's sensitivity was 65.7% and its specificity was 88.2% for each of the six criteria.

The use of social media in pharmacy practice and education. 2006

Autor- Arcelio Benetoli

M.Sc., Timothy F. Chen Ph.D., Parisa Aslani Ph.D.

302 records (Fig. 1) were found through the literature search: 88 came from Medline, 99 from Embase, 52 from PubMed, 52 from IPA, and 11 from CINAHL. One hundred copies were present. A title review and an abstract review led to the removal of 109 and 38 more entries, respectively, as they were deemed irrelevant. To verify if any pertinent articles had been eliminated, the abstracts of a selection of the articles that were omitted based on their titles were examined as a validity check. Additionally, 32 letters and remarks were

eliminated.

Telemedicine Adoption: Conceptual Models for Telemedicine Transfer and Technical Actants, 2010

Author- Sanjay Prakash Sood

To plug the void that exists in the domain of information systems research on the adoption of telemedicine. Addresses lack of research on technical aspects of telemedicine adoption. Once the dynamically evolving technical actants are known it will be easier for system designers to design telemedicine systems even more modular and scalable. It may help to defer the obsolescence of telemedicine systems and on the other side, users will not have to learn and relearn the features of telemedicine systems.

Online Pharmacy : AN E-STRATEGY FOR MEDICATION, 2011.

Author- Ashwin Kumar Chaturvedi, Umesh Kumar Singh, Amrith Kumar

The experience of receiving healthcare from legal online pharmacies is advantageous in many ways. These pharmacies offer efficiency and convenience, two qualities that consumers with hectic schedules often value. Customers can order prescription drugs at 3 A.M., long after many traditional pharmacies have closed, or they can wait until a few minutes after their lunch break to do so. Online pharmacies provide a level of privacy that is not always available in neighbourhood pharmacies. Patients can get prescriptions filled and ask questions in a private setting, free from prying eyes and ears from coworkers, neighbours, and other parties. Lastly, patients who are housebound or who live distant from a typical pharmacy can receive assistance from online pharmacies.

Development and Implementation of a Curricular - wide Electronic Portfolio System in a School of Pharmacy, 2011.

Author- Tina C. Lopez, David D. Trang, Nicole C. Farrell, Melissa A. De Leon, Cynthia C. Villarreal, and David F. Maize

The curricular results and other school-specific data were added by the e-portfolio manager to the RXoutcomes. The various RX result parts are shown in Table 2. The 2007 ACPE Standards, the checklists for course-integrated assessments, and the student outcomes document were all available in the RXoutcomes resource library. All of the courses were mapped to the school's outcomes document, the Centre for the Advancement of Pharmaceutical Education (CAPE) document, the competency statements for the North American Pharmacist Licensure Examination (NAPLEX),

and ACPE standards by a subcommittee of the assessment committee.1. The Annual Student Assessment and Progression (ASAP) Examination was a year-end assessment used to gauge students' competency in knowledge- based outcomes.

How do Community pharmacy recover from e - prescription errors?, 2012.

Author- Olufunmilola K. Odukoya Ph.D., B.Pharm. a, Jamie A. Stone M.S. b, Michelle A. Chui Ph.D., Pharm.D. b

The majority of e-prescription errors were found when data was being entered into the pharmacy system. Using a range of techniques, including: (1) double-checking the e-prescription information; (2) printing the e-prescription to paper and cross-referencing the information on the computer screen with the information from the paper printout; and (3) using coloured pens to highlight significant information, both chemists and technicians were able to identify these errors. The following tactics were employed to explain errors: (1) a thorough examination of the patient's medication history; (2) patient consultations with chemists; (3) consultations with other members of the pharmacy team; and (4) utilisation of online resources. Participants either guessed correctly about the physician's intentions or called or faxed the prescriber to correct e-prescription problems.

A Study of service qualitative effectiveness in the Indian Healthcare Sector, 2014. **Author-** Harleen Singh.

To detect the service features that are more vulnerable for patient service quality perception, given a better understanding of the job satisfaction perspective of the service provider how do they take satisfaction differently because of various demographic parameters. Facility and personal care, medical treatment care.

Evaluation of e-prescribing in Chain Community Pharmacy: Best-practice recommendations, 2015.

Author- Michael T. Rupp PhD, BPharmTerri L. Warholak PhD, BPharm

Pharmacy staff members' opinions, convictions, and level of satisfaction with electronic prescription as opposed to traditional prescribing, as well as suggestions for enhancing e-prescribing in community practice settings. Employees at chain pharmacies are generally happy with how e-prescribing is going in their operations right now. They do see some significant flaws in the way this technology has been applied in medical practices and related organisations, though. Modifications to computer systems and staffing

procedures in pharmacies and medical offices could reduce or eliminate some shortcomings and enhance the efficacy, efficiency, and safety of prescription drugs.

A detailed Analysis of Online Pharmacy characteristics to inform safe usage by patients, 2015.

Author- Bassam M. Alwon, Gennifer Solomon, Faseeha Hussain & David J. Wright

Regulation status, standards compliance, information provision quality, and obstacles to medication access. Within the top 100 results, 113 websites offering simvastatin, fluoxetine, and diazepam were found.

The three prescription-only medications that are easily accessed online are dangerously addictive, may interact dangerously, and need counseling to protect patient safety.

Perception of Hospital Employees on the acceptance and use of electronic health Records and Telemedicine, 2016.

Author- Sivaji Jinka.

It has been noted that implementing telemedicine and electronic health records is extremely difficult until hospital administration fosters a positive perception in the minds of hospital personnel and collaborates with them. In a nation like India, the introduction of telemedicine and electronic health records will enable access to healthcare services even in rural and remote areas, improving job quality, decreasing the need for hospital visits, cutting costs, saving time, telemonitoring, accurate documentation of health information, and information security. By taking the results into account and cutting down on time, governments and healthcare facilities can determine the hospital resources needed to integrate telemedicine and electronic health records.

Evolving Role of Telemedicine in Health Care Delivery in India, 2017.

Author- Pankaj Mathur, Shweta Srivastava, Arati Lalchandani, Jawahar L. Mehta⁴

Numerous other subspecialties have used telemedicine to deliver prenatal care to impoverished areas in numerous nations and to lower the readmission rates of patients with congestive heart failure. The success of telemedicine initiatives in India has been largely attributed to federal government support for a national network. The success of these telemedicine initiatives also largely depends on private businesses, other regional players, and

international organisations like UNICEF and the WorldBank.

Dispensing patterns of the community pharmacies in various parts of the world including Developed and Developing countries - a qualitative study for the development of Healthcare System, 2017.

Author- Billah, Abdul Ajeed Mohathasim.

Drugs sold in pharmacies in all 3 countries were 90% Over-the-counter drugs. People in these countries suffer from pain-relief treatment. This study suggests incorporating alternate medical therapy from drug-free treatment at community pharmacies.

The majority of the drugs sold were for analgesics, antipyretics, anti-diarrheal, anti-inflammatory, laxatives, antihistamines, and cold flu medications. India needs to regulate the OTC list of drugs that can be sold without a prescription.

The Modern Era : Online - Pharmacy and Self - Medication: Review, 2017.

Author- Dr. Vikas Chaurasia

More than 36,000 online pharmacies are available, and hundreds more websites promise to provide you with a large selection of medications with little to no difficulty. The National Association of Boards of Pharmacies has certified fewer than 400 of these pharmacies as having complied with strict safety standards. You can shop from the comfort of your home and compare costs thanks to the Internet. However, it's crucial to exercise extreme caution while purchasing medications online. Certain websites provide medications that might not be suitable for you to consume and could endanger your health. Every day, new websites appear in spite of the efforts of law enforcement to safeguard the public. It is the consumer's duty to use caution when using the Internet.

Web Application for online pharmacy, 2019.

Author- Ashita S. Patil¹, Rutuja S. Patil², Snehal P. More³, Sonali S. Sankpal⁴

When Easy Meds, an online pharmacy focused on medication purchases, is implemented, fewer prescriptions will be written and modifications will result, increasing patient safety and service quality. We may therefore draw the conclusion that online platforms will be used to allow customers to order prescription-based drugs and will serve as a marketplace for pharmacy shops. The online pharmacy offers professional doctor-searching services in addition to prompt delivery, easy handling, a straightforward ordering method, and quick service with only one click.

CONTEMPORARY MARKETING IN PHARMACY WITH A FOCUS ON THE E - PHARMACYCONCEPT, 2019.

Author- Dejana Ignjatović¹ Milenko Stanić²

Thirty percent of the 100 respondents who answered the questions were men and seventy percent were women. Regarding qualifications, 61% of participants hold a university degree, and 39% possess only a high school diploma. In response to the question of whether they regularly purchase non-pharmaceutical items online, 64% of respondents indicated they do, while 36% disagreed.

Because the pharmaceutical industry directly improves and protects people's health, it is of both broad and particular societal importance.

E-Pharmacy impacts on Society and the Pharma sector in an Economical pandemic situation, 2020.

Author- Singh Himani, A. Majumdar, and N. Malviya.

In remote locations, it is more responsible and efficient than a neighbourhood pharmacy because it delivers easy-to-affordable medications right to the customer's door with only a click and educates them about available medical treatments, government action, impact during the pandemic, and flexibility. New legislation, minors buying pharmaceuticals, ease of use, data security, and interstate transmission.

STATUS OF E-PHARMACIES IN INDIA: A REVIEW, 2021.

Auhtor- Deepikal¹, Ravinder Singh¹, Thakur Gurjeet Singh¹, Manjinder Singh¹, Balraj Saini, Rupinder Kaur², Sandeep Arora and Rajinder Singh¹

Even with all of the benefits that online pharmacies offer, they have a greater tendency to contribute to illogical clinical behaviours such as self-medication, prescription drug abuse, long-term drug usage, and biased prescribing in the medical field. These unethical practices will exacerbate clinical difficulties such as medication resistance, non-compliance, extended hospital stays, and a rise in patient morbidity and mortality. We may therefore anticipate the finalisation of proposed regulations and certain pertinent adjustments to the current laws governing the pharmaceutical operations in India, given the growing popularity of the e-pharmacy idea in that country.

A study on the influential factors of the last mile delivery projects during Covid-19 era, 2021.

Author- M. Suguna

· Bhavin Shah
· S. Karthik Raj
· M. Suresh³

The product is susceptible to the risk of becoming infected with the coronavirus the longer it is not supplied to the consumer, which leads to an illness crisis. There is greater possibility for driving when the fulfilment timetable is met, certain commodities are shipped, and routing efficiency is attained. Project managers responsible for last-mile delivery encounter numerous difficulties when transporting large amounts of goods to customers' doorsteps while abiding by Covid-19 precautionary and contactless delivery guidelines.

The research on Geographic limitation of the sample size urban suburb city of Bengaluru, India, 2021.

Auhtor- Dr. Avinandan Mukherjee

This study is the first of its kind to apply self-determination theory, extended unified theory of acceptance and use of technology, and technology acceptance model constructs to the study of consumer usage behavior in the online healthcare environment. The findings demonstrate that e-pharmacy adoption and recommendation intention are positively correlated with performance expectancy, effort expectancy, social influence, and hedonic motivation. The findings show that adoption and desire to suggest e-pharmacies for buying medications in India are unrelated to gender or educational attainment.

The study on Indian Pharmacy Management System, 2022. Author- Bhavesh Sharma, Harsh Dubela, Amit Bohra

To encourage the development of the pharmacy management system by enhancing the efficiency and safety of the pharmacy and retail location. In this instance, the project is computer-based, depending on the kind of system. This will assist you in better managing the price, insurance, security, etc. of a medication. A system for managing pharmacies has been developed to guarantee the dependability of the clientele. They will be able to sell both the access to and the right to drugs, which will lessen the quantity of these illegal activities. The pharmacy database management information is processed by the pharmacy management system, an internet-based programme that also handles the necessary data and shops.

Cost, health impacts and cost-effectiveness of iceless refrigeration in India's last-mile vaccine cold chain delivery", 2022.

Author- Katherine Plewes, Panarasri Khonputsaa, Nicholas P. J. Daya,b, and Yoel Lubell

ILVCs are a potentially important and reasonably priced innovative technology that could boost vaccination programme effectiveness, especially in South America, Africa, Russia, India, and China.

The BRICS countries of Africa need healthcare policies that take resource allocation into account, as their health expenditures are expected to rise until 2030.

Because of the reduced incidence in our model, vaccinations were found to be cost-effective when using the current IBVCs, with a cost per DALY prevented of US\$216, slightly more than previous estimates.

The rise of E-pharmacy in India: Benefits, challenges, and the road ahead, 2022.

Author- Alison C. Dcruz, Vinay N. Mokashi, Sreedhar Ranganath Pai, and Dharmagadda Sreedhar

With an efficient foundation, the thriving Indian e-pharmacy business has the potential to grow significantly in the upcoming years. An easy and unobstructed route to medications. Chronic illness management will be greatly streamlined by e-pharmacy, and under government initiatives, unreserved regions will have access to its services. Customers will also greatly benefit from the partnership between physical and internet pharmacies.

Telemedicine in India Swot Analysis and Development of a Strategic Model for Its Management, 2022.

Author- Yadav, Sheetal.

Based on market analysis and primary study conducted, it is recommended that the telemedicine market needs to bring in certain changes to ensure enhancement in its application and adoption in the healthcare sector of India. Improved technological infrastructure, Development of compatible applications, Device means to develop legal conformity, Develop suitable business model to establish standards for patient safety and privacy, Promote health education and skills for adoption of telemedicine in health sector of India, Devise strategies to overcome cultural and social barriers, Develop effective communication strategies, and Find ways to reduce the initial costs of setting up

telemedicine in India.

Perceived Risk and Online Purchase Intention of E-Pharmacy: Examining the Moderating Role of Online Trust in the Indian Context, 2022.

Author- Varghese Assin T J1, Dr. Nimmy A George, Dr. P Sivakumar.

This study has demonstrated that the primary factors influencing customers' intentions to buy medications online are aspects of their risk perception. To learn more about how online consumers adopt e-pharmacy, the moderating role of OT in the relationship between risk characteristics and OPIs is examined.

The conceptual model used in this study to represent the intention of customers to make online purchases was adequate and in line with current ideas. Due to the restrictions, this study appears incomplete as neither mediation nor moderated mediation are covered in this model.

E-PHARMACY: A STUDY OF GROWTH OF DIGITAL APP-BASED PHARMACY DELIVERY SERVICES, 2022.

Author- Harshali Bhalariao, Dr. Dhananjay Mandalik.

Gender does not correlate with any of the three variables. Respondents who are male and female share the same challenges and levels of pleasure. The obstacles faced by male and female respondents do not significantly differ from one another. Moreover, supplemental data is noted. The respondents who are younger and middle-aged have the highest level of satisfaction. Middle-aged respondents have successfully embraced technology, whereas younger respondents are entirely tech-savvy. Structural Equation Modelling is used to analyse details. The outcome of the SEM shows that influencing factors have a favourable effect on customer satisfaction. Additional findings demonstrate that difficulties have a major detrimental effect on customer satisfaction.

Issues And Challenges in E-PHARMACY, 2023.

Author- Dr. MAHESH SHANKAR GAIKWAD

The study's conclusions are as follows: · The Covid period saw the highest amount of online drug purchases · Customers consistently trusted the quality of the drugs they bought, and the highest number of high-quality medications were bought. They did not even consider the cost of the medications. · The majority of the customers used PharmEasy to order medicines online, and they

were also swayed by television advertisements. The primary factor influencing the buyers was the discount factor, meaning PharmEasy always allowed discounts on the price of the medications and, most likely, the home delivery of the medications. The customers are happy with the online medicine purchases made through PharmEasy and are extremely confident that the purchase through the gateway is highly secure.

"ANALYZING THE INTERNET OF THINGS(IOT) ADOPTION BARRIERS IN THE INDIAN HEALTHCARE SUPPLY CHAIN USING MULTI-CRITERIA DECISION-MAKING TECHNIQUES ", 2023.

Author- Videsh D

The absence of internet access and IT infrastructure are the two main barriers that healthcare decision-makers need to be aware of. It also suggests that healthcare organisations are waiting on government support to streamline legal and regulatory policies, which is a major obstacle because the healthcare supply chain involves many different stakeholders and implementing these policies appears to be a difficult task

because of policy differences. Depending on the availability of data collection techniques and numerous other factors, the integrated hierarchical decision-making approach may be preferable in India right now. However, the development of artificial intelligence and deep learning algorithms will likely lead to more comprehensive efforts in the future to redesign healthcare supply chain management.

When Technology Precedes Regulation: The Challenges and Opportunities of e-pharmacy in Low-Income and middle - Middle-Income Countries, 2023.

Author- Rosalind Miller, Francis Wafula,

Regulations now in place have not kept up with technological advancement, and HICs have not created useful models that LMICs may use. LMICs, on the other hand, are still struggling with widespread regulatory violations in traditional pharmacies. Thorough research will be necessary to support this industry's expansion and the regulatory response as it changes. There is little international collaboration and no worldwide regulating body for e-pharmacies. Authorities lack authority over the operations of online pharmacies that are located outside of their own countries. These online pharmacies may function under distinct frameworks for medication approvals, marketing protocols, and retail pharmacy regulations.

A Study On Awareness About E-Pharmacy among Rural people of Malur In Kolar District, Karnataka, 2023.

Author- Dr. Siji K, Reshma S.

Gender influences how e-pharmacy services are used. Time-saving was found to be the most popular statement, followed by delivery in second place, convenience in third place, ease of use in fourth place, and cost-effectiveness and discounts/offers in fifth place. The characteristics that drove rural people to embrace an e-pharmacy system varied significantly: delivery (0.030), time savings (0.005), convenience (0.042), and cost-effectiveness (0.392). There was no discernible variation in the elements influencing rural residents' adoption of e-pharmacies. a system that is user-friendly (0.776) and offers discounts (0.645).

E-COMMERCE ADOPTION IN THE PHARMACY RETAILING: THE SMART SOCIALCOMMERCE DISTRIBUTIVE INNOVATION, 2023.

Auhtor- ERCOLE VAGNOZZI

The use of the Internet and the Web for business transactions is commonly referred to as e-commerce. For a more technical definition, consider this: e-commerce is the exchange of goods and services between businesses and individuals using digital means. The tendency of Italians to purchase online and their confidence in e-commerce, which undoubtedly represents the most significant innovation in the retail distribution field and is still growing, albeit less dramatically in Italy than in other European countries or even overseas, should be highlighted at this point, despite the technical and legislative specifics (Vagnozzi, 2015). Regarding e-commerce, Italy is rather conservative, as the great majority of internet users have just a minimal amount of faith in online purchasing. The average age of an Italian who enjoys internet shopping is between 18 and 35 years old, and they make more money than the typical person in the country.

III. CHAPTER: 3

Research Methodology

Research Methodology: "Exploratory Research Methodology".

The Mode of data collection followed is Exploratory Research Methodology. Here are some more details regarding this approach.

Exploratory methodology is a research approach used to explore new or under-researched topics. It is often used to generate new ideas and hypotheses, to identify important variables, and to

develop a better understanding of a phenomenon.

Exploratory methodology is often flexible and open-ended, and it can involve various data collection and analysis methods. Common exploratory methods include:

Literature reviews: Reviewing the existing literature on a topic can help researchers to identify gaps in the knowledge and to develop new research questions.

Focus groups: Focus groups are group discussions that are led by a moderator and that are designed to explore a particular topic in depth.

Participant observation: Participant observation involves researchers immersing themselves in a particular setting or group to observe and learn from them.

Case studies: Case studies involve in-depth examinations of individual cases, such as individuals, organizations, or events.

“The tool which is used for Data Analysis is Excel”.

Research Data Collected:

- **Literature review:** I can use Excel to import and analyze the results of a literature review. For example, I can use Excel to calculate the frequency of certain keywords or phrases in the literature or to identify trends in the research.
- **Participant Questionnaires:** The type of questions used in the questionnaire are structured multiple-choice questions. This is done so that we can find, what kind of people, regions, and Aged are utilizing this service.
- **Sample Size:** 70 members.

Research Questions:

- 1) What motivated you to use E-Pharmacy services?
- 2) Last-mile delivery is a crucial factor in my decision to use E-Pharmacy services.
- 3) Concerns about the security of personal information are a barrier to using E-Pharmacy services.
- 4) How satisfied are you with the last-mile delivery service provided by the E-Pharmacy?
- 5) What kind of Medicine do you most prefer to buy through E-Pharmacy?

Traditional Indian Market of Pharmacy vs. – Pharmacy Market of India: (GOOGLE DATA)

Here are some statistics on the Indian e-pharmacy market and the traditional Indian market for pharmacy:

Indian e-pharmacy market:

- The Indian e-pharmacy market is expected to grow at a CAGR of 13.84% from 2022 to 2026.
- The Indian e-pharmacy market is projected to reach \$8.3 billion by 2026.
- Most e-pharmacy users in India are between 25 and 44.
- Males are more likely to use e-pharmacy services than Females.
- E-pharmacy services are more popular in urban areas than in rural areas.

The traditional Indian market for pharmacy:

- Traditional Indian pharmacies account for over 80% of the Indian pharmacy market.
- Traditional Indian pharmacies offer a wide range of products and services, including prescription medicines, over-the-counter medicines, Ayurvedic and herbal medicines, homeopathic medicines, personal care products, and healthcare supplements.
- Traditional Indian pharmacies are typically run by families, and they have a strong relationship with their customers.
- Pharmacists in traditional Indian pharmacies typically have a deep knowledge of traditional and modern medicine.

Despite the growing popularity of e-pharmacy services, the traditional Indian pharmacy market is still expected to remain strong in the coming years. This is due to several factors, including the convenience, affordability, personalization, and variety that traditional Indian pharmacies offer to their customers.

Demographics according to Indian Market over E-Pharmacy:

The demographics of the Indian e-pharmacy market are diverse, but some key trends can be identified:

Age: Most e-pharmacy users in India are between 20 and 40.

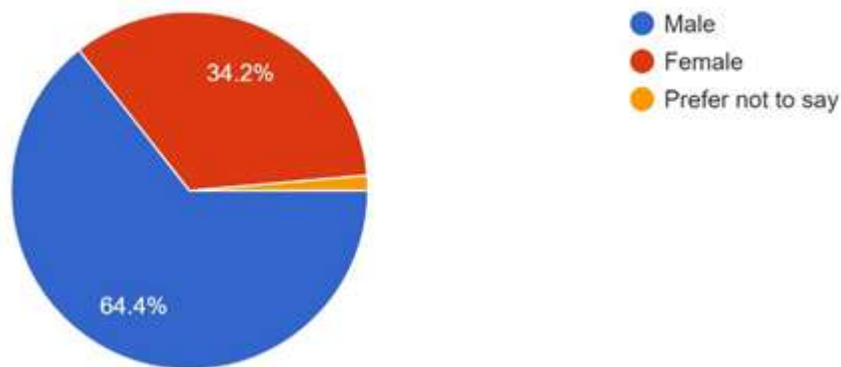
Gender: Females are more likely to use e-pharmacy services than males.

Location: E-pharmacy services are more popular in urban areas than in rural areas.

IV. CHAPTER: 4

4.1 Analysis and Interpretation:

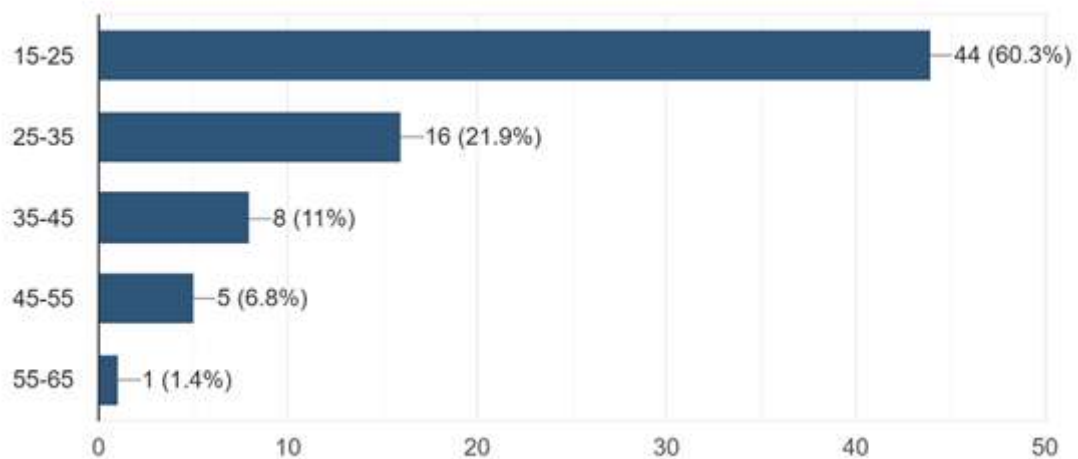
Graph – What Gender is using E-Pharmacy more?



Interpretation: By this graph, we can see that More Males use E-Pharmacy shopping as comparing females.

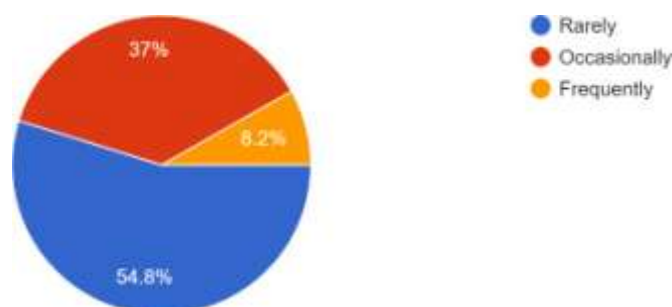
More male population uses mobile to the ratio of females.

Graph- Which Age bracket uses more E-Pharmacy?



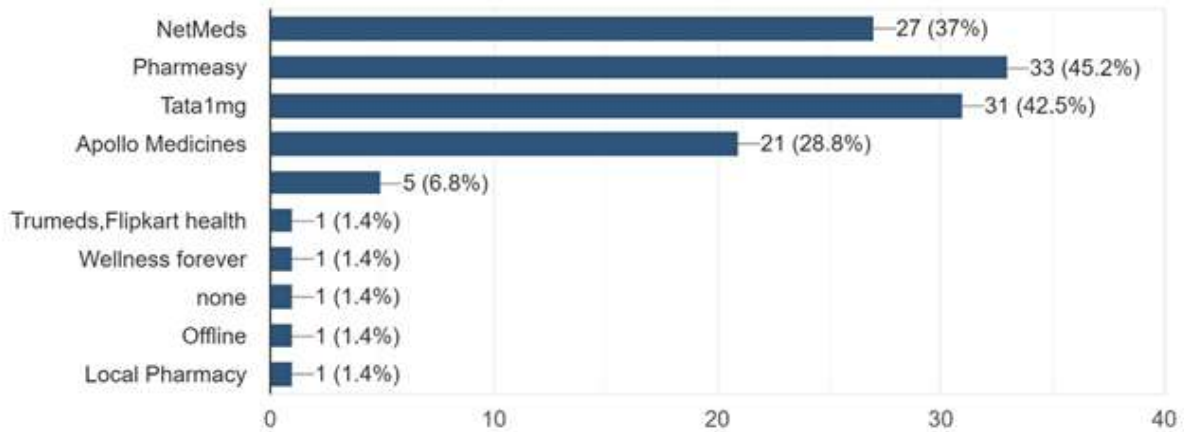
Interpretation: By going through the graph, the result is More of the youth use E-Pharmacies modernization is effective along with technology.

Graph- How often do people use E-Pharmacy?



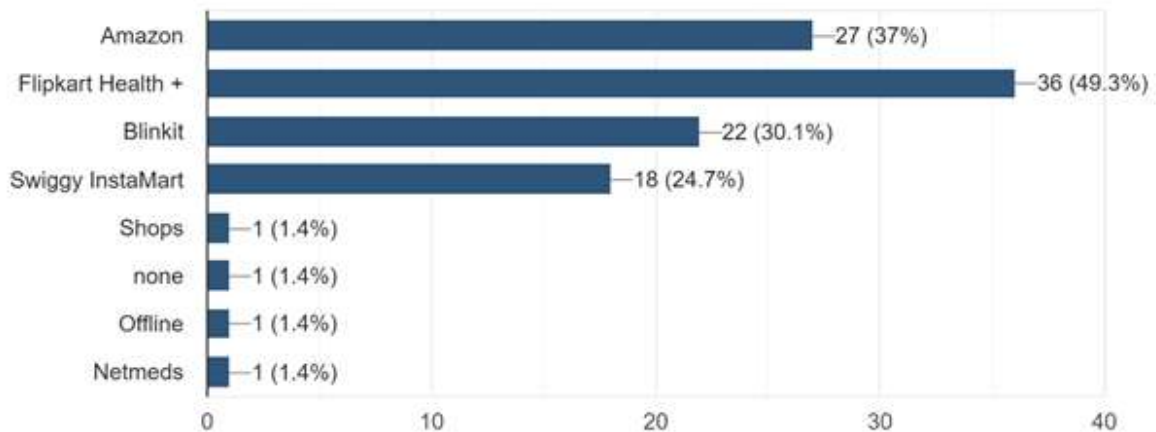
Interpretation- Most people repeat and use E-Pharmacy as today's time is of e-commerce and it provides convenience.

Graph- Which Website/App is most used for E-Pharmacy?



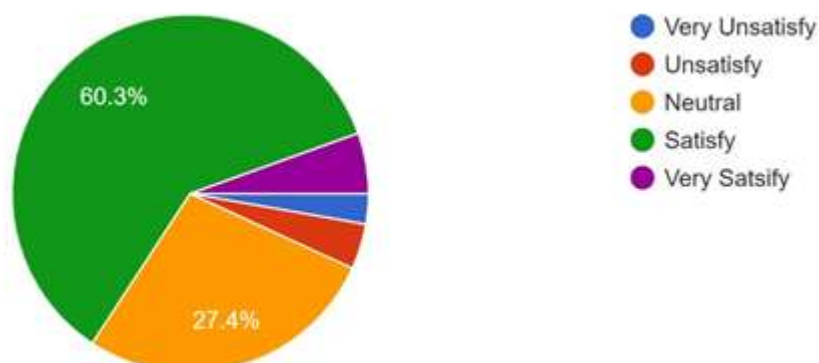
Interpretation- The maximum footprints are of Pharmeasy followed by TATA1Mg. Their customer retention is good and other than this their website and app is more easy touse.

Graph- Other Apps and Websites Used for E-Pharmacy?



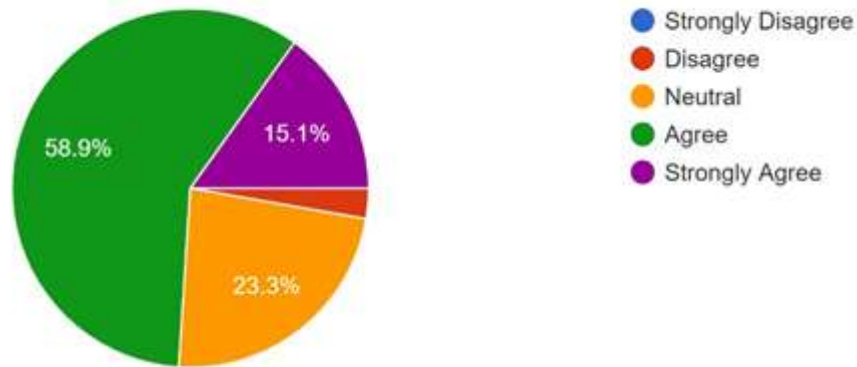
Interpretation- Giants like Flipkart are providing the same service as e-commerce to order and deliver through their strong networks.

Graph- How Satisfied Users Are They Using E-Pharmacy?



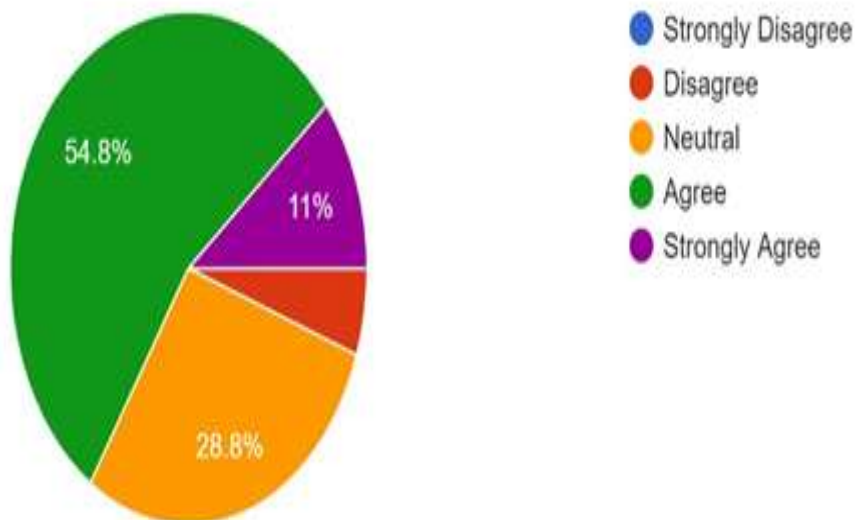
Interpretation- Among 10 People more than half of the number is satisfied with this Service this indicates that there is a lot of scope for improvement in this segment.

Graph- Improved network and connection in the last mile?



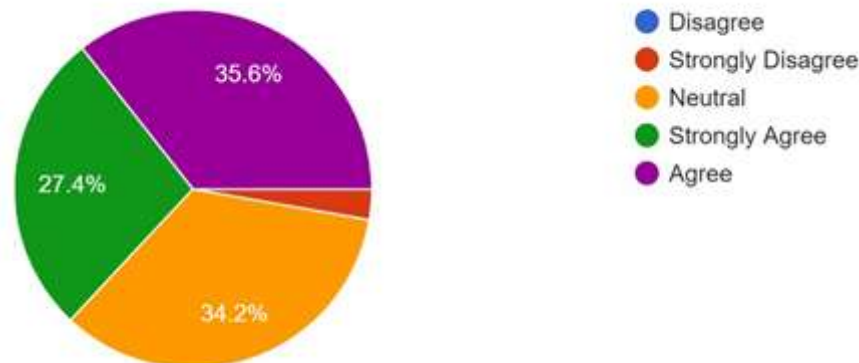
Interpretation- Around 60% of the people agreed that it has catered to their needs and desires as per their wanting levels. Which signifies success at the early stages but the challenge to furnish.

Graph- Reliability on E-pharmacy?



Interpretation- Around 55% of the people feel safe to use E-Pharmacy in today's tech world. This signifies trust issues among data security users.

Graph- How Cost-effective is E-Pharmacy in comparison to the traditional market?



Interpretation- Mix reviews are being observed for this perception among users.

Future Scope of E-Pharmacy:

Integration with Healthcare Systems: E-pharmacies have the potential to become integrated parts of broader healthcare systems, improving patient care and medication management. Research on seamless integration and interoperability between e-pharmacies and healthcare systems will be important.

Data-Driven Decision-Making: As technology advances, e-pharmacies will have access to more data on customer behavior, market trends, and regulatory requirements. This data can be used to optimize operations, personalize services, and make informed decisions.

Collaboration and Partnerships: Collaboration between stakeholders, including e-pharmacies, regulators, and healthcare providers, will be key to addressing complex challenges and ensuring sustainable growth.

Evolving Regulatory Landscape: The data suggests that regulations in the e-pharmacy space are likely to see significant changes in the future. This is driven by the need to address concerns like quality, pricing, and access while considering stakeholder interests and power dynamics.

V. CONCLUSION:

Telemedicine and e-pharmacy are emerging technologies that have the potential to revolutionize the healthcare landscape in India. By providing convenient, affordable, and accessible healthcare services, these technologies can help to bridge the gap between India's urban and rural healthcare infrastructure and improve healthcare outcomes for all Indians.

The adoption and utilization of telemedicine and e-pharmacy services are still in

their early stages in India, but they are growing rapidly. This growth is being driven by factors such as increasing internet and smartphone penetration, rising healthcare costs, and a growing awareness of the benefits of these technologies.

The intricate interplay between e-pharmacy, telemedicine, and the traditional brick-and-mortar pharmacy and medical market structures in India is complex and evolving. Regulatory hurdles, consumer preferences, and the long-term sustainability of these emerging models are all critical factors that will shape the future of healthcare delivery in India.

The comprehensive investigation and analysis of the multifaceted influence of e-commerce and telemedicine on the healthcare sector in India is essential for understanding the transformative potential of these technologies and for developing policies and strategies that support their sustainable growth and adoption.

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Keywords searched:

Online Medicine Trust
E-Medicine Medications
E-Dawai Cold Medicines
Internet Drugs
Online Pharmacy Dosage