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Assignment Cover Sheet

Learner name(s):	Abhirami Jose		
Learner number(s):	[redacted]		
Assignment Type:	**Individual:** Yes	**Group:**	
Course:	MSCMPBT	**Stage/year:**	1
Module:	Dissertation		
Study Mode:	Full time Yes	Part-time	
Lecturer Name:	Justin Keogan		
Assignment Title:	Consumer Trust In AI Chatbots For OTC Medication Advice—A Pilot Study In Ireland And India		
No. of pages:	166		
Uploaded to Moodle:	Yes X	No	
Additional Info:			
Date due:	25/08/2025		
Date submitted:	25/08/2025		

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CONSUMER TRUST IN AI CHATBOTS FOR OTC MEDICATION ADVICE—A PILOT STUDY IN IRELAND AND INDIA

Research dissertation presented in partial fulfillment of the requirements
for the degree of
MSc in Pharmaceutical Business and Technology

Griffith College Dublin

Dissertation Supervisor: **Justin Keogan**

Submitted by

Abhirami Jose

August 2025

Candidate Declaration

Candidate Name: **Abhirami Jose**

I certify that the dissertation entitled: **CONSUMER TRUST IN AI CHATBOTS FOR OTC MEDICATION ADVICE—A PILOT STUDY IN IRELAND AND INDIA**

submitted for the degree of **MSc in Pharmaceutical Business and Technology** is the result of my own work and where reference is made to the work of others, due acknowledgment is given.

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Date: 25/08/2025

Supervisor Name: Justin Keogan

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Date: 25/08/2025

Dedication

This dissertation is dedicated with heartfelt gratitude to my family whose unwavering love, support and encouragement have sustained me throughout this journey. To my parents who instilled in me the values of perseverance, integrity and lifelong learning, your sacrifices and constant belief in my potential have been my greatest strength.

I also dedicate this work to my teachers, mentors and academic guides whose wisdom, patience and guidance have shaped my path as a researcher. Your commitment to knowledge and critical inquiry has been a constant source of inspiration.

Finally, this dissertation is dedicated to the broader scholarly community and to all those who strive to harness technology responsibly for the betterment of healthcare and society.

Acknowledgements

First, I want to thank God Almighty for providing me with the strength for the successful completion of this research.

I take this opportunity to thank **Justin Keogan,** my supervisor, who guided and supported me a lot throughout the research. The expertise and feedback from the supervisor were invaluable and I am deeply grateful for the constant encouragement that led to continuous improvement in each stage of the research. The insightful feedback from Justin was fundamental to the successful completion of this research.

I extend my sincere thanks to Griffith College and all the lecturers for the guidance and direction that helped to improve my knowledge and wisdom throughout the program.

I would like to thank all my family and friends who were with me from the start of the journey and helped me stay positive and achieve my goal.

Abstract

CONSUMER TRUST IN AI CHATBOTS FOR OTC MEDICATION ADVICE—A PILOT STUDY IN IRELAND AND INDIA

Abhirami Jose

Artificial intelligence (AI) chatbots are increasingly used in healthcare, yet questions remain about consumer trust, particularly in providing over-the-counter (OTC) medication advice. This dissertation evaluates consumer trust and satisfaction with AI chatbots and how cultural, regulatory, and experiential factors shape trust.

A mixed-methods design grounded in a realist philosophical approach was adopted. The research collected quantitative data through surveys (n=153) and qualitative data via semi-structured interviews. Quantitative analysis employed descriptive statistics, t-tests, correlations, and regression modelling, while qualitative data were analysed thematically through the lens of the trust–accuracy paradox and cultural frameworks.

Findings show that trust in chatbots is conditional and there are significant differences between the two countries. Indian consumers reported higher acceptance of chatbots by using chatbots often for minor ailments such as coughs or fever linked to limited healthcare access. However, advice was usually cross-checked with family or doctors showing conditional trust. Irish consumers relied more on pharmacists due to easier access to professional care. Survey data showed moderate trust in chatbot accuracy (22% scored 3/5) but stronger trust in pharmacists (38% scored 5/5). Pharmacists were aware of chatbot use, yet many expressed concerns about misleading or incomplete advice. Across both countries, pharmacists remained the benchmark of credibility. The study contributes to understanding how trust in AI healthcare tools differs across different cultural and regulatory settings for example, Indian participants demonstrated necessity-driven trust valuing accessibility and speed while Irish participants exhibited regulation-driven caution emphasising privacy and accountability. Gender differences were also observed, with men showing greater trust than women.

The study contributes to theory by extending models of trust in automation demonstrating that satisfaction and reassurance often outweigh accuracy in driving adoption

Overall, the research highlights that trust in healthcare AI is shaped not solely by technical accuracy but by user experience, cultural context, and systemic healthcare realities, underscoring the importance of responsible and contextualised deployment.

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List of Abbreviations

1. AI- Artificial Intelligence
2. ANOVA - Analysis of Variance
3. EU- European Union
4. EU AI ACT- European Union Intelligence Artificial Intelligence Act
5. GDPR- General Data Protection Regulation
6. GP- General Practitioner
7. HBM- Health Belief Model
8. OTC- Over the Counter Medication
9. TAM- Technology Acceptance Model

Table of Contents

1 Introduction

1.1 Overview

This chapter introduces a comprehensive foundation for the study. It explains the roles of AI chatbots in healthcare and their ability to provide OTC medication advice and the limitations of the advice provided. It outlines the research purpose, significance and justification, aim, objectives and research questions. The chapter concludes with an overview of the dissertation structure.

1.2 Research Background

Artificial Intelligence-powered chatbots and conversational agents are software designed to simulate human-like interactions by engaging in interactive and lifelike conversations with users. These bots analyse the user query and comprehend the query by extracting the knowledge from their servers and generate a coherent response in natural language(Casheekar *et al.*, 2024). Since the release of ChatGPT-3.5 in November 2022, generative artificial intelligence (AI) has become increasingly popular(Kiyomiya *et al.*, 2025). Chatbots are revolutionising healthcare by giving people 24/7 access to medical information. The ability of these bots to offer immediate assistance is one of the reasons why they are popularly used(Chakraborty *et al.*, 2023). With the growing accessibility of over-the-counter medications and the convenience of digital platforms, consumers are turning to AI tools for advice on self-care and minor ailments(Kiyomiya *et al.*, 2025; Esmaeilzadeh *et al.*, 2025). This integration of AI-powered chatbots into healthcare particularly for over-the-counter (OTC) medication advice generates both enthusiasm and concern.

While chatbots have demonstrated an ability to provide correct responses to medication queries various multiple peer-reviewed studies have indicated that their advice often lacks completeness and sometimes omits critical safety information potentially leading to harm or poor medication adherence(Yatawara *et al.*, 2022; Andrikyan, Sametinger, Kosfeld, *et al.*, 2024; Abanmy *et al.*, 2025). In a study by Yatawara *et al.*, (2022) it was found that 79.2% of ChatGPT's OTC(over the counter) medication responses omitted critical safety information such as warnings for thyroid cancer risks with tirazepatide or bleeding risks with apixaban. This reveals a core tension between the convenience of immediate access to advice and the safety risks.

Despite these risks there is a growing reliance on AI chatbots for OTC medication advice without professional oversight even when these tools provide incomplete or

potentially unsafe advice(Kiyomiya *et al.*, 2025). Consumer trust in chatbots remains robust due to the ease and availability of chatbot access it may lead to an over-reliance on chatbots by neglecting professional care when necessary. Trust is a multifaceted construct encompassing beliefs about the chatbot's accuracy, relevance, reliability and safety(Prakash and Das, 2024). The trust is not focused on accuracy but shaped by various factors such as prior experiences and necessity. Esmaeilzadeh et al. (2025) emphasize that users are willing to overlook minor inaccuracies if a chatbot provides actionable and understandable advice and the overall experience meets their immediate needs. These concerns are amplified in the context of OTC while generally considered safe medications where patients are more likely to self-diagnose and act on AI-generated advice without professional oversight can also lead to adverse outcomes or misuse (Schifano *et al.*, 2021; Kiyomiya *et al.*, 2025).

While prior research has highlighted the rising reliance on AI chatbots for healthcare advice there remains a notable lack of focus on OTC medication guidance. The existing literature (Andrikyan, Sametinger, *et al.*, 2024; Esmaeilzadeh *et al.*, 2025) tends to focus on AI chatbot performance for prescription or general health advice rather than OTC medication advice. There are fewer studies (Kiyomiya *et al.*, 2025; Abanmy *et al.*, 2025) examining consumer trust and accuracy of OTC medication advice, yet they are confined to a single country. Although several studies evaluate chatbot performance there is yet a limited understanding of how consumers perceive and trust AI chatbot-generated OTC medication advice across different healthcare infrastructures, regulatory environments and levels of digital literacy.

These gaps highlight the need for an in-depth, cross-cultural analysis to examine the unresolved tension between immediately accessible chatbot advice and potential risk from incomplete information in OTC medication. Addressing this gap requires empirical investigation to explore how consumers across different national contexts negotiate trust in AI chatbot-generated advice OTC advice and how cultural, regulatory and digital factors shape this negotiation and how it influences self-care decisions. This motivates the present study's focus on how specific chatbot cues and institutional assurances shape consumer trust and subsequent use intentions.

1.3 Research Purpose

The purpose of the research is to investigate how sociocultural, regulatory and other factors influence consumer's trust in AI chatbots when seeking OTC medication advice in India and Ireland. The study explores the user perception, trust, willingness and

limitations to follow the chatbot advice compared to licensed pharmacists or health professionals. The following sections will elaborate on the purpose of the research, justifying the significance of the research and outlining the objectives of the research.

1.4 Significance of the Study

The understanding of consumer trust is critical to ensure safe and effective self-care due to the increased usage of chatbots for healthcare advice. There is a lack of comparison in examining how cultural, regulatory and health literacy differences shape consumer trust in AI chatbots across countries. The study addresses these gaps through a comparative pilot study in Ireland and India using primary data to capture consumer experiences that cannot be explained by existing theoretical models. The two countries with distinctly different healthcare infrastructures, regulatory frameworks and digital health landscapes help to understand key differences and similarities in shaping trust in consumers. Ireland operates providing broad access to pharmacists and regulated medication advice it is challenged by notable waiting times for both general practitioners and pharmacy services(Lample, 2025) The literature describes these challenges but it does not acknowledge how Irish consumers respond to them through actual interactions with chatbots a gap addressed by primary data . While in India the mixed healthcare system followed by high out -of pocket spending, and much larger population both Indian and Irish consumers may be more reliant on digital solutions yet there are still barriers in India such as low literacy or health literacy and improper AI infrastructure especially in rural areas(Parry and Aneja, 2020).

There is a sharp difference in the regulatory landscape which is central to shaping consumer trust in AI health tools as Ireland operates with strict guidance of the EU's regulatory advice such as the EU AI Act which mandates rigorous assessments and transparency for AI health tools(Clarke, 2024; EU, 2024). The presence of these robust regulations in Ireland means that consumers may have a greater confidence in the safety and reliability of chatbot advice as these tools are subjected to external oversight and legal accountability. However, the European Parliament. Directorate General for Parliamentary Research Services (2022) highlighted the challenges that remain in integrating these regulations within healthcare systems such as ensuring clarity for AI developers and users, maintaining information and managing ethical concerns linked to health data use. Even though the country benefits from a structured regulatory environment adapting these to rapidly changing AI technologies and diverse healthcare practices requires ongoing refinement what remains unknown is whether consumers themselves perceive these safeguards while making decisions which can be assessed

through the primary data. On the other hand, India's approach is deep-rooted cultural heritage that remain integral alongside modern digital platforms. While these traditions foster a sense of community and trust they create varied expectations and skepticism toward new solutions like chatbots(Bagga *et al.*, 2024). The fact India lacks specific AI healthcare regulations creates potential safety and compliance gaps (Chanda, 2024). The absence of regulatory evaluation leads to chatbot recommendations that maybe met with skepticism(Parviainen and Rantala, 2022). The country has embarked on efforts to build governance structures that address ethical and operational challenges of digital health technologies. Programs have been introduced to establish foundational infrastructure, digital access and policy advisory bodies have proposed draft guidelines that touch on responsible AI usage(Parry and Aneja, 2020; Verma *et al.*, 2020). The government holds large volumes of health data from public facilities and national programmes, but these data often suffer from inconsistencies, incompleteness. This data quality can undermine trustworthiness and can amplify biases in AI models(Verma *et al.*, 2020). Thus, the above problems drive Indian consumer's approach to AI chatbot advice will be cautious and triangulate the response with traditional sources. Despite the progress large population, fragmented regulation and uneven standardisation, a diverse healthcare landscape, disparities in health literacy and uneven digital infrastructure across urban and rural areas the growing adoption reflects the perceived value in saving time and filling gaps in public health provision the skepticism is balanced by necessity and convenience (Parry and Aneja, 2020; Verma *et al.*, 2020; Bagga *et al.*, 2024; Kiyomiya *et al.*, 2025). Both Ireland and India show dynamic but distinct regulatory paths. Ireland operates within a mature yet still developing EU framework that balances innovation with the prevention of risk, while India is progressively crafting a regulatory ecosystem amid vast demographic and infrastructural challenges. Consumer trust in AI in both countries is influenced not only by the regulations but also by how these rules are applied, the ability to meet standards and the familiarity of the public with digital health solutions(Prakash and Das, 2024).

The cross-cultural comparison will investigate how these differing contexts shape the consumer trust in AI chatbot OTC medication advice. The definition and scope of the Over the Counter (OTC) medications vary between Ireland and India which can influence the consumer's perception and trust. In Ireland aligned with strict EMA guidelines, OTC medications are classified and regulated into categories prescription-only and non-prescription ensuring rigorous standards for safety, efficacy and labelling. This structured classification supports consumer confidence in safety and the appropriate use of OTC products. India currently lacks a legally recognized OTC

category. The absence of clear classification standards and enforcement allows both licensed and prescription drugs to be sold without a prescription which can lead to complications and harm when taking self-medication decisions. Indian consumers often depend on advice from pharmacists and family members when making health decisions. The extent of self-medication varies significantly across different regions and population groups are influenced by how easily people access healthcare services, their level of health literacy and financial constraints(Marathe *et al.*, 2020). This wide variation in regulations and social practices are expected to directly affect how consumers may interpret and respond to AI chatbot-generated advice differently according to how safe and trustworthy they consider OTC medications to be this empirical gap is addressed through the study.

Trust has been conceptualised as an interaction between structural assurances (regulations, institutional reliability, safety standards) and cognitive factors (individual experiences usefulness and social norm)(Prakash and Das, 2024)In Ireland, the strict guidelines classify and regulate medication ensuring safety which may reinforce trust when chatbots provide consistent advice, whereas in India the lack of a recognised OTC category and weak regulatory enforcement means consumers face greater doubt and trust hinges more on usefulness, affordability and personal experiences than external verification. By comparing these contrasting countries the study examines whether the consumer trust in AI chatbots is primarily anchored in regulatory, institutional strength or cultural adaptation strategies. With the increasing global trends in OTC medication markets, accompanied by the adoption of AI-powered health chatbots, there needs to be a careful focus on trust, as it may cause harm through misinformation and misinterpretation, limiting the potential benefits of these technologies (Statista, 2025; Kiyomiya *et al.*, 2025). By employing a mixed method approach this study captures how trust in chatbot advice evolves in real-world consumer experiences reflecting diverse levels of health literacy, regulatory awareness and health care access. The survey instruments include questions to measure the consumer trust and satisfaction, regulatory awareness, cultural congruence and healthcare access, these critical aspects are rarely examined systematically in prior studies. The prior literature often relied on scripted prompt scenarios to assess the chatbot performance and user trust these artificial tests can limit insight into consumer behaviour. The primary data collected through survey captures real-life interaction dynamics by asking participants to describe and reflect on how they have used chatbots for OTC medication advice and their subsequent willingness to act on the advice. Qualitative interviews provide rich insights into how consumers interpret and negotiate trust and risk amidst different

socioeconomic and regulatory realities that are not explainable in theoretical and controlled settings.

By focusing on participant's experience and integrating qualitative interview insights we address the literature limitations by finding answers that represent actual consumer trust, risk perception and decision making. Moreover, the cross-cultural comparison offers unique insights into universal versus region-specific drivers of trust which cannot be obtained by analysing a single country or theoretical models. The study focuses on mapping how trust develops and varies with socioeconomic and regulatory influences in two diverse national contexts that existing literature and secondary data alone cannot sufficiently deliver.

1.5 Research Aim

To investigate and compare consumer trust and satisfaction with AI chatbots in providing OTC medication advice in Ireland and India and to explore cross-cultural trust determinants by investigating various factors influencing customer reliance on AI versus Pharmacist recommendations.

1.6 Objectives

- To evaluate consumer trust, usability and satisfaction in AI chatbots (ChatGPT, Gemini, etc.) for OTC medication advice in Ireland and India**.**

- To compare consumer trust and willingness to follow AI chatbot-generated OTC medication advice versus human pharmacist recommendations in both Ireland and India.
- To analyse cross-cultural variations in trust determinants (cultural and digital literacy factors) and identify key influences such as perceived accuracy, relevance, and reliability of chatbot's OTC medication advice in India and Ireland.

1.7 Research Questions

- How do consumers in Ireland and India perceive the trustworthiness, usability and overall satisfaction of AI chatbots when used for OTC medication advice?
- What key factors influence consumer trust and willingness to follow OTC medication advice generated by AI chatbots compared to advice provided by human pharmacists in both countries?

- In what ways do digital health literacy and cultural context influence and shape consumer trust and adherence to AI chatbot OTC medication advice in Ireland and India?

- How does the trust accuracy paradox influence the reliance on AI chatbot advice on OTC medication across these distinct cultural regulatory settings?

1.8 Structure of the Study

The study is organised into five integrated chapters that collectively address the research aim and objectives while grounding the investigation in relevant theory and observed evidence. Chapter 1 introduces the background to the study by understanding consumer trust in AI chatbots for OTC medication advice within the sociocultural and regulatory contexts of Ireland and India, establishing theoretical foundations, highlighting the research problems and the gap in literature on cross-cultural analyses of trust in OTC-specific AI advice. Chapter 2 critically reviews the main strands of literature including previous studies on AI chatbot accuracy and user perceptions, cross-cultural perspectives on digital health adoption and the regulatory frameworks governing AI health tools on the base of Trust in Automation framework and the Technology Acceptance Model. The chapter also identifies the lack of comparative multi-country research on trust in AI-generated OTC medication advice. Chapter 3 outlines the methodology providing the rationale for employing a mixed methods approach that integrates quantitative measurements of trust, usability, and willingness to follow advice with qualitative insights into cultural, regulatory, and personal factors influencing trust. Further, Chapter 4 presents and analyses the findings from both methods, comparing patterns between the two countries and interpreting them through the theoretical frameworks. Finally, Chapter 5 synthesises the findings concerning the existing literature, draws implications and presents conclusions. This structure ensures that the study remains theoretically grounded, explicitly addresses the identified knowledge gap and uses a robust methodological design to produce meaningful insights into consumer trust in AI chatbots for OTC medication advice.

1.9 Conclusion

The chapter introduces the growing use of AI chatbots in delivering OTC medication advice and highlights the importance of consumer trust. It has outlined the research background and articulated the aim and objectives that guide the investigation. Through its discussion of the contrasting healthcare infrastructures, regulatory frameworks and digital health landscapes of the two countries the chapter establishes why this comparative lens is

both relevant and necessary. It has prepared the ground for the next chapter which will critically review and synthesise the relevant literature examine the theoretical frameworks underpinning the investigation. The gap is acknowledged here and will be further unpacked and critiqued in Chapter 2's literature review. This chapter provides both the compass and the coordinates for the study ensuring a clear line of sight between the research purpose, the knowledge gap and the strategy for addressing it.

2 Literature Review

2.1 Overview

The chapter investigates literature relevant to understanding consumer trust in AI chatbots for over-the-counter (OTC) medication advice. In line with Chapter 1, the review examines the literature based on five interrelated themes namely convenience versus clinical safety, contested views on AI accuracy versus user trust, health and digital literacy as both gateways and barriers, cross-cultural factors influencing trust, and the integration of thematic insights culminating in a conceptual framework. Each section systematically critiques past research by not only synthesising its findings but also directly addressing the gap identified in Chapter 1 by identifying methodological and conceptual shortcomings such as ecological validity concerns, Western-centric model assumptions, and insufficient attention to user diversity.

2.2 Convenience Vs Clinical Safety

A central tension in the literature is the frequently praised convenience of digital pharmacies and AI chatbots particularly during COVID-19 19 offering instant, non-judgmental advice at any hour (Parry and Aneja, 2020; Parviainen and Rantala, 2022; Chakraborty *et al.*, 2023; Casheekar *et al.*, 2024) despite persistent safety concerns notably the risk of misinformation, omission of red flags(Yatawara *et al.*, 2022; Asan *et al.*, 2023; Abanmy *et al.*, 2025). Many of these studies (Kiyomiya *et al.*, 2025; Abanmy *et al.*, 2025) employ structured questionnaires or hypothetical queries rather than observing the natural interactions in the real-world medication advice contexts. Thus, the ecological validity is compromised raising questions about how accurately these studies reflect user decisions made.

The concept of convenience is not experienced equally by everyone. The dominant adoption models such as the Technology Acceptance Model (TAM) (Ma and Liu, 2005) attribute the rising popularity of digital health services to perceived usefulness and ease of use. This is true for users in urban settings with easy access to both digital and traditional pharmacies choosing between an online service or an offline pharmacy may truly be a matter of preference. However, for many people particularly in rural settings where access to pharmacists and doctors is limited chatbots and digital health solutions are less about convenience and more about necessity(Parry and Aneja, 2020; Kaponis *et al.*, 2023; Clark, 2024; Esmaeilzadeh *et al.*, 2025) this illustrates how TAM underestimates structural factors like as understood by the Health Belief Model that

behaviour is also mediated by perceived severity, susceptibility and barriers(Nortje, 2024) Yet many studies fail to investigate how factors like digital literacy, language barriers or socioeconomic status shape who can benefit from these services safely and who may be left behind(Babu, 2022; Nutbeam, 2023).

Convenience therefore cannot be considered in isolation from safety, literacy and cultural context. High-literacy users may treat chatbots as a supplementary tool cross-checking advice with professional sources whereas low-literacy users may over-rely thus increasing vulnerability to unsafe recommendations(Nutbeam, 2023). Similarly, in regulated systems like Ireland, convenience may coexist with a presumption of safety due to institutional oversight, while in fragmented systems like India, convenience often masks deeper risks stemming from weak regulation and inequitable access.

2.3 Contested Views on AI Accuracy Versus User Trust

There is a striking contradiction in the literature that the user trust in digital health advice persists despite documented inaccuracies regarding inaccuracy and incomplete advice(Andrikyan, Sametinger, *et al.*, 2024; Shiferaw *et al.*, 2024; Khatri *et al.*, 2025; Abanmy *et al.*, 2025). According to Trust Acceptance theory and the Technology Acceptance Model (Ma and Liu, 2005; Hancock *et al.*, 2011) trust is expected to decline when accuracy decreases. Yet in practice, trust is often shaped less by clinical safety and more by interface familiarity, speed of response, and the chatbot's non-judgmental tone (Kauttonen *et al.*, 2025). These factors satisfy user emotional and psychological needs, fostering confidence even when factual reliability is compromised, has been explained in the literature(Kauttonen *et al.*, 2025). These models assume trust is rational and individualistic thereby neglecting collective and systemic influences. For instance, in India, family or community recommendations may anchor trust, while in Ireland, confidence is often tied to regulatory oversight.

The Health Belief Model(Nortje, 2024) put forward that increasing perceptions of susceptibility and inaccuracy should logically erode trust in unreliable sources but literature contradicts this as ease of accessibility, positive peer reviews and abundance of online health information often prevent this trust erosion(Prakash and Das, 2024; Esmaeilzadeh *et al.*, 2025). This indicates that trust persists not because users are unaware of risks, but because convenience and necessity outweigh accuracy concerns. This brings in the necessity of investigating socioeconomic factors that contribute to the maintenance of trust despite the errors which is crucial for understanding user behaviour in digital health context.

The prevailing literature is based on Trust Models and frameworks that emerged from Western countries(Ma and Liu, 2005; Nortje, 2024; Kauttonen *et al.*, 2025) characterized by high regulatory and individualized health systems. This creates cultural and contextual blind spots. These models may not translate into India's regulatory framework and state influence healthcare cultures or Ireland's waiting time in the medical system(Parry and Aneja, 2020; Lample, 2025). These factors like cost, waiting time (Gupta *et al.*, 2016; Chakraborty *et al.*, 2023; Lample, 2025) can significantly shape how trust is formed, sustained or withdrawn yet these are rarely researched by the literature. This suggests the need to consider these factors to provide an understanding of how these factors shape trust dynamics in diverse healthcare settings as these are poorly captured by the Western-driven models.

Numerous studies(Shiferaw *et al.*, 2024; Khatri *et al.*, 2025; Abanmy *et al.*, 2025) present the chatbot accuracy without specifying the composition of their sample such as whether participants are urban or rural, literate or limited literacy, technology confident, have access or not. As a result, these studies make it difficult to determine whether differences in trust or accuracy are shaped by technology performance, user background or cultural constraints. This produces overly generalised conclusions that obscure the realities of diverse user groups. This lack of specificity leads to overgeneralised conclusions that obscure the reality of diverse users. Accuracy, convenience and literacy are therefore intertwined. Errors may be tolerated because chatbots are convenient, but literacy shapes whether inaccuracies are even recognised. Cultural context then determines whether users withdraw trust or sustain it out of necessity. Understanding this divergence is central to addressing the gap identified in Chapter 1.

2.4 Health and Digital Literacy: Gateway and Barriers

Most literature agrees that digital health literacy influences how users interpret and act on chatbot advice(Nutbeam, 2023). Health and digital literacy play a double-edged role in AI health advice they protect users by helping them spot unsafe recommendations or they leave people vulnerable if they are lacking health and digital literacy(Nutbeam, 2023). The literature shows low health or digital literacy as a personal shortcoming that the user needs to upskill rather than the technology adapting to fit people.

The definition of adequate literacy is often set by global health policymakers based on generalised assumptions of what good health understanding looks like(Babu, 2022;

Nutbeam, 2023).Bagga *et al.*, (2024) points out that these benchmarks may not be appropriate in countries like India where class, gender and languages create wide differences or in Ireland where older and immigrant populations still face digital barriers. Most studies employ standardised literacy assessments without cultural adaptation, which reduces validity in heterogeneous populations. For example, English-language surveys cannot capture how users engaging in regional-language chatbots perceive and interpret advice. When AI chatbots are built based on a generalised idea it can result in technology being useful for some but sidelining many of the most vulnerable.

The earlier theme Convenience Vs Clinical Safety discusses that digital health is not a choice but a necessity at times. Thus, if the designing of AI Tools focuses on working in local languages, using formats suited to varying literacy levels and providing access and improving infrastructure then it could prevent the serious risks like vulnerability to misinformation(Uitto *et al.*, 2025).Literacy interacts with convenience, trust and culture. High-literacy users may cross-check chatbot advice against pharmacists while low-literacy users may accept advice readily magnifying safety risks. Culturally, literacy interacts with regulation that is in Ireland, regulatory confidence may partly compensate for low digital literacy, while in India, weak regulation compounds vulnerabilities among low-literacy groups.

2.5 Cross-Cultural Factors Influencing Trust in AI Health Advice

Trust in AI-provided health advice is deeply embedded within the cultural, systemic and regulatory framework making cross-cultural analysis essential to understanding the differences(Prakash and Das, 2024). The literature (Kiyomiya *et al.*, 2025; Abanmy *et al.*, 2025) explores trust in a single country's context. The cross-cultural dimensions shaping trust in AI provided advice remain underexplored especially how healthcare systems, regulatory environments and cultural beliefs influence user perceptions.

Ireland's healthcare system often described as a mixed public-private model with relatively strong regulatory oversight is considered good but has its problems of out-of-pocket costs and long waiting periods and grapples with regional disparities and challenges from an aging population(Thompson, 2022; Lample, 2025). Within the setting and availability of regulations like EU AI ACT(EU AI ACT, 2025) shapes the consumer's inclination to place confidence in digital health tools like chatbots which are perceived as extensions of trusted healthcare bodies. This may lead to over-reliance on AI chatbots even when users may not fully understand their limitations.

India's healthcare system is markedly pluralistic and fragmented, characterized by uneven regulation, a dominant informal sector, and vast socioeconomic and geographic disparities (Gupta *et al.*, 2016; Jain, 2023). People navigate a complex mix of government health services, private providers, traditional medicine, and increasingly digital platforms, all operating within a weakly enforced regulatory environment(Jain, 2023). The trust in digital health is often complicated by economic differences, linguistic diversities and patchy internet infrastructure(Parry and Aneja, 2020; Verma *et al.*, 2020; Bagga *et al.*, 2024). The history of colonial rule has a lasting impact on healthcare systems being imposed leading to experiences of neglect increased cost and mistrust(Gupta *et al.*, 2016). Many people view the chatbots as a foreign intervention in their standard course of care and not as a source they can rely on(Bagga *et al.*, 2024) . Consequently, trust in AI health advice in India is negotiated differently amid concerns about transparency, affordability, and cultural relevance highlighting a very different evaluative context than in Ireland.

These stark contrasts foreground the limitations of applying Western-developed trust and technology acceptance models across diverse cultural contexts. Models like TAM and classical Trust in Automation paradigms often assume individualistic reasoning and linear risk assessments (Ma & Liu, 2005; Hancock et al., 2011), ignoring how communal values, health pluralism, and power asymmetries shape trust across societies (Prakash and Das, 2024). Furthermore, colonial histories, economic inequalities and infrastructural digital divides influence who can access, interpret, and benefit from AI health tools (Parry and Aneja, 2020; Verma *et al.*, 2020). Language barriers, gender norms, and rural exclusion in India diminish trust and usability(Verma *et al.*, 2020; Bagga *et al.*, 2024) and is rarely captured by Western-centric models. In Ireland, unequal rural-urban healthcare distribution and digital literacy gaps among older adults similarly affect trust but serve as important examples of different cultural and systemic dynamics (Thompson, 2022). Therefore, culturally sensitive adaptations of these models are essential to accurately understand and foster trust in AI health advice as literacy divides create different vulnerabilities and convenience in Ireland is framed as a choice, while in India it is a necessity therefore inaccuracies may be dismissed in India but questioned in Ireland.

2.6 Thematic Integration and Emerging Questions

Previous literature reviews have tended to treat convenience, safety, trust, and literacy as separate, discrete factors affecting user interactions with AI chatbots for over-the-counter (OTC) medication advice. However, this separation falls short under scrutiny as it overlooks the interconnectedness of these factors. A more integrated approach is

necessary to understand how they collectively influence user behaviour and decision-making. Convenience, for example, may encourage continued reliance on chatbots even when accuracy is questionable, literacy determines whether such inaccuracies are recognised or overlooked and regulatory or cultural context shapes whether users treat these inaccuracies as tolerable risks or unacceptable dangers.

The complex tension between trust and accuracy illuminates ethical and structural risks whether users often rationally prioritize convenience or access, even when safety might be compromised. In the OTC context, convenience is particularly powerful because these medicines can be purchased without prescriptions, encouraging users to rely on chatbots for rapid reassurance and unlike in prescription contexts where professional oversight is assumed, OTC advice often leaves users to self-diagnose, making trust in chatbot accuracy more consequential. Literacy mediates in both contexts such as high-literacy users may double-check chatbot advice against pharmacists, while low-literacy users may accept advice uncritically amplifying safety risks. Thus, convenience, accuracy, literacy, and culture are not discrete themes but interdependent forces that together shape whether trust is reinforced or eroded.

Critical research gaps remain strikingly evident. There is a lack of studies establishing appropriate safety criteria tailored for OTC chatbots, rather than relying on one-size-fits-all standards derived from clinical prescription drug frameworks, which may overestimate risks or overlook user realities. This connects directly to Research Question 1, as understanding how consumers in Ireland and India evaluate safety in OTC chatbot advice requires criteria that reflect real-world OTC use rather than prescription-oriented frameworks. Furthermore, real-world comparative studies that cross language, gender, socio-economic, and digital divides are largely absent, limiting the generalizability of findings. This fills in Research Question 2 by investigating how cultural and structural contexts shape determinants of consumer trust in OTC chatbot advice across diverse populations. Most research adopts Western-developed trust models and accuracy metrics; however, the assumptions embedded in models like the Technology Acceptance Model (TAM) or classical trust-in-automation theories often fail to capture cultural nuances or power imbalances. Addressing this limitation is central to Research Question 3, which asks whether existing trust frameworks can be adapted to better reflect cross-cultural realities of OTC chatbot use. Finally, power dynamics and questions about the consumers in design choices receive inadequate attention despite their crucial role in shaping who benefits from or is marginalized by AI health technologies.

Addressing these gaps requires an approach that integrates convenience, safety, trust, and literacy within the socio-technical and regulatory contexts of diverse user populations. Such an approach will be better positioned to reveal why users continue to rely on chatbots despite risks, and how this reliance plays out differently across healthcare systems like Ireland and India. This interwoven analysis also lays the foundation for the conceptual framework developed in Section 2.7, which reconfigures existing adoption and trust models to capture paradoxes of trust, inequalities of literacy, and cross-cultural regulatory differences.

2.7 Conceptual Framework

This study proposes a conceptual framework to address the limitations in the existing models Technology Acceptance Model, Trust in Automation and Digital Health Literacy Theory in consumer reliance on AI chatbots for over-the-counter (OTC) medication advice. The framework reconfigures and extends their assumptions to capture the contextual, emotional and systemic determinants of trust in diverse healthcare settings such as India and Ireland. While the Technological Acceptance Model (TAM)(Ma and Liu, 2005)offers a foundational view of individual adoption based on perceived usefulness and ease of use. This is insufficient for healthcare where trust is influenced not only by usability but also by collective trust dynamics crucial in healthcare settings, where decisions are often influenced by systemic structures, regulatory oversight, and societal values. In India, where AI regulation is limited and healthcare access is uneven, trust may emerge more from necessity or habitual compromise(Verma *et al.*, 2020), while in Ireland, trust is often tied to institutional credibility and data protection (Goddard, 2017; EU AI ACT, 2025).

Trust in Automation (Hancock *et al.*, 2011)complements TAM by focusing on system performance, transparency and appropriateness and treats trust as a rational outcome failing to capture the emotional, cultural, and regulatory complexities of healthcare in diverse contexts like Ireland and India. The framework proposes new theoretical considerations in response to the trust–accuracy paradox, users are found to continue to trust chatbots despite documented errors and clinical incompleteness (Yatawara *et al.*, 2022b; Abanmy *et al.*, 2025).The Health Belief Model assumes that higher perceptions of risk and inaccuracy should reduce reliance on unsafe tools(Nortje, 2024). Yet evidence from AI chatbot use shows that even when users are aware of inaccuracies they may continue to rely on chatbots because convenience, necessity, and accessibility outweigh perceived risks. This trust–accuracy paradox demonstrates that trust is not entirely built on factual accuracy but on perceived empathy, availability, and the non-judgmental tone

of chatbot interactions(Prakash and Das, 2024). By explicitly embedding this paradox as a theoretical contribution, the framework accounts for why users sustain trust even when accuracy is uncertain, thus stating that emotional reassurance and experiential familiarity are equally significant to technical reliability.

Existing frameworks treat trust as static, but in reality trust develops and fluctuates over time through repeated usage. Therefore, the framework includes feedback loops, showing how trust is co-constructed and evolves based on user experiences including both positive (e.g., quick, helpful advice) and negative (e.g., misinformation or technical failure). This dynamic view aligns with Hancock et al. (2011)and Kauttonen et al. (2025)who argue that trust in automation is recursive, shaped by both prior outcomes and external context.

Furthermore, the framework identifies pharmacist experience as a benchmark variable serving as a point of comparison for evaluating chatbot credibility(Nutbeam, 2023). Users familiar with in-person pharmacist consultations may hold higher expectations of empathy, accuracy, and accountability which shapes their tolerance or critique of AI-driven alternatives.

To address the gaps in existing theories the contribution of this framework is threefold., this research modifies TAM by introducing contextual moderators such as socioeconomic factors, regulatory strength and cultural norms. It also expands the Trust in Automation framework by incorporating perceived emotional safety, user vulnerability, and systemic trust disparities. Thirdly it reformulates the Health Belief Model by showing that risk perception does not automatically reduce reliance in contexts where necessity, convenience, or cultural expectations sustain use. By embedding these modifications and feedback mechanisms, the new framework conceptualizes trust in AI chatbots shaped by system performance, user literacy, regulation, culture, and lived experiences. This allows the study to investigate why users in India and Ireland continue to rely on chatbots despite risks and how determinants of trust differ across regulatory and cultural settings in the specific domain of over the counter (OTC) medication advice.

The theoretical contribution of this framework (Fig1) lies not only in integrating TAM, Trust in Automation, and the Health Belief Model but in reconceptualising trust in AI health tools as a paradoxical and dynamic construct. By embedding feedback loops, emotional reassurance, and regulatory-cultural moderators, the framework extends beyond existing models to show that trust is sustained even amid inaccuracies shaped by necessity, convenience and systemic context. The Ireland–India comparison demonstrates that trust is not reducible to rational cost–benefit calculations but emerges from

negotiated trade-offs within uneven healthcare infrastructures. This yields new theoretical insights into trust as simultaneously individual and systemic, rational and emotional, static and evolving—an advance beyond Western-centric models that treat trust as linear and universal.

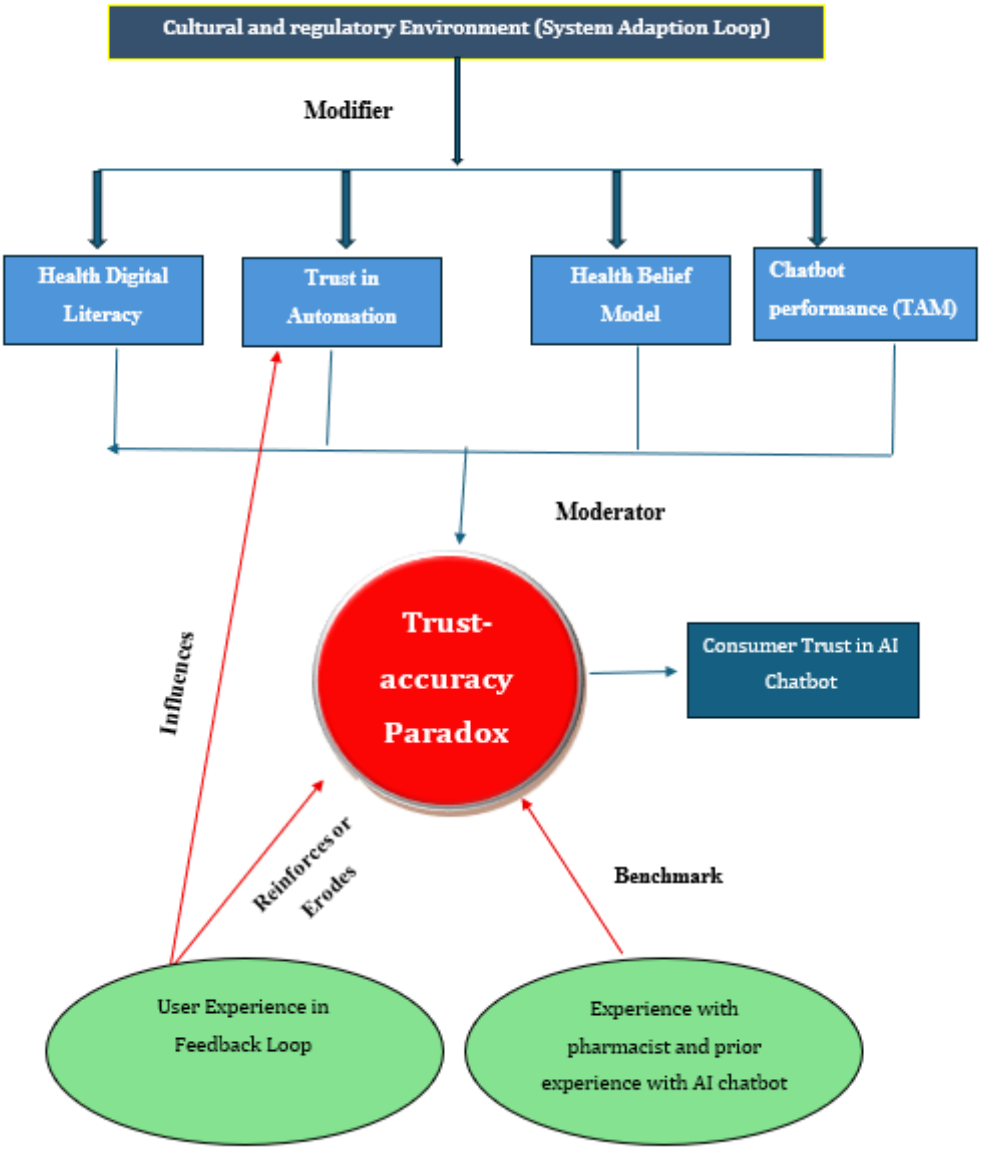

Figure 1:Conceptual Framework by Author

2.8 Conclusion

The chapter has integrated strands of literature to reveal how trust in AI chatbots is shaped by complex interactions among technological performance, user literacy, cultural norms and regulatory environments. It has highlighted critical gaps, including the absence of contextually grounded, comparative research across socio-economic and linguistic divides, and the inadequacy of current Western-derived theoretical models. The chapter culminates in a revised conceptual framework that incorporates emotional safety, cultural sensitivity,

adaptive trust dynamics, and pharmacist experience as comparative benchmarks. This framework establishes a critical link between the problem context detailed in Chapter 1 and the empirical research design to be developed in Chapter 3 providing both the theoretical and practical foundation necessary to address the identified knowledge gaps.

3 Methodology and Research Design

3.1 Overview

This chapter establishes the methodological framework for achieving the three research objectives outlined in Chapter 1. The choice of methodology is selected by analysing the gaps and contraindications identified in Chapter 2. The literature review revealed that while many studies assess trust, usability or literacy in isolation there has not been an investigation regarding how these factors interact in shaping consumer reliance on AI chatbots for OTC medication particularly in a cross-cultural context between Ireland and India. It also highlighted that trust often persists despite recognised safety limitations making it important to explore not just how much consumers trust but also why they trust and under what influences.

The chapter justifies the adoption of a realist philosophy and mixed methods approach and outlines the comparative cross-sectional research design tailored to India and Ireland. Further sections detail the development and adaptation of quantitative and qualitative data collection tools, explain the sampling strategy and describe the planned quantitative and qualitative data analysis procedures directly aligning with the conceptual framework. The chapter further addresses ethical considerations, acknowledges methodological limitations, and summarizes how each methodological choice supports the achievement of the research objectives.

3.2 Research Philosophy and Approach

According to Saunders *et al.*,(2007) research philosophy represents the fundamental set of beliefs that guide how knowledge is understood and acquired, shaping methodological choices, data collection and analytical approaches. The study adopts a realist research philosophy that aligns closely with the core focus on trust formation in AI chatbots for OTC medication advice. Realism is appropriate for this study as it recognises that consumer trust exists while acknowledging that cultural, regulatory and personal experiences influence its formation(Saunders *et al.*, 2007; Bell *et al.*, 2019).In this view trust is not a subjective attitude. It is a generative mechanism influenced by the interaction between the structural environment and individual dispositions. Ontologically, realism holds that social phenomena have mechanisms (perceived usefulness, integrity, risk) that exist whether they are observed. Epistemologically, these models are capable of making errors in interpreting behavioural patterns(Saunders *et al.*, 2007; Bell *et al.*, 2019). In the study trust is treated dually as something observable it aligns with already established models such as perceived

usefulness, information sharing, ease of use and willingness to follow advice but as something socially constructed it is expressed through people's narratives which differ with culture, regulation and experiences such as affordability in India and privacy expectation in Ireland. The realist move is to connect these two strands. The approach is well-suited for a cross-cultural comparative analysis in Ireland and India because the trust in AI chatbots can be measured quantitatively through survey scales (Forza, 2002). In contrast, the underlying reasons for its development or erosion could be understood qualitatively and quantitatively through the specific influence that shapes it in different environments. This philosophical stance also directly supports the conceptual framework outlined in Chapter 2 which integrates the Technology Acceptance Model, Trust in Automation Framework and Digital Health Literacy Theory and elements of the Health Belief Model. Realism enables the examination of observable constructs such as perceived usefulness, ease of use, satisfaction and willingness to follow advice while addressing moderating factors that influence and shape this trust differently in Ireland and India such as regulatory trust, cultural alignment and literacy. The realist philosophy adheres to mixed mixed-methods approach of data collection involving both quantitative surveys and qualitative interviews. The quantitative surveys identify broad patterns of trust and qualitative interviews uncover the specific cultural, regulatory and other factors driving those patterns. The survey data paired with interviews after analysing with abductive reasoning helps to connect how the trust dynamics work within people such as if Irish people finding chatbots easy to adopt but hesitating due to privacy misuse risk than usability whereas in Indian participants emphasize on saving time or cost benefit compared to the data misuse risk, in both cases we read behaviour alongside which model is active and in what context. The chosen methods align with realist principles by distinguishing between empirical patterns and underlying generative mechanisms. Surveys capture observable trust constructs while statistical analysis tests how structural moderators such as literacy, regulation, and culture condition these constructs. Semi-structured interviews extend this by uncovering the deeper cultural narratives, communal norms and systemic healthcare constraints that realism treats as causal mechanisms. Together, this design operationalises realism’s dual focus on the empirical and the structural enabling the study to move beyond surface-level correlations to explain why trust develops differently in Ireland and India. This philosophical stance ensures that the conceptual framework is not universal but open to refinement based on the varied sociocultural landscapes explored in the study. Thus, a realist philosophical approach allows for obtaining detailed data that aligns with the study’s objectives of comparing consumer trust in AI chatbots in providing OTC medication advice between two countries.

Research approaches are crucial for selecting a suitable design that aligns with the research question. It also helps in identifying appropriate strategies for the study's specific aims(Saunders *et al.*, 2007).Deductive reasoning starts with established theories and tests them against empirical data (Saunders *et al.*, 2007; Bell *et al.*, 2019). On other hand, inductive research develops theories from patterns observed from qualitative data, this approach is valuable in new explored or rapidly evolving contexts (Thomas, 2006). The study employs an abductive approach that combines both deductive and inductive approaches (Bell *et al.*, 2019). In this study, the abductive approach is appropriate as it enables iterative movement to tighten constructs between established trust theories and emerging cultural patterns, particularly valuable when exploring how the Technology Acceptance Model (TAM) manifests differently across Irish and Indian contexts. Abduction means starting with a provisional framework and refining it in light of findings rather than only testing a fixed model or building a new one (Bell *et al.*, 2019).The abduction cycle begins with theoretical expectations drawn from Technology Acceptance Model, Health Belief Model, Trust in Automation then repeatedly moves back and forth assessing, refining and expanding them based on specific findings assessing whether the observed patterns identified aligns or diverges from the original constructs and whether cultural norms, regulatory factors, institutional trust or digital literacy need to be integrated into the framework based on survey responses and interview insights. While TAM suggests perceived usefulness should drive chatbot adoption, interviews in India may reveal that affordability is even more influential which leads to recalibration of splitting usefulness into clinical versus economic usefulness and revise measurement methods. By alternating between theoretical models and real-world observations abduction makes it possible respecify mechanisms and scope conditions to accommodate diverse cultural and regulatory drivers of consumer trust rather than forcing all user's behavior into one fixed model. Similarly, in Ireland even when consumers demonstrate strong digital literacy and find AI chatbots easy to use, the previous experience or public knowledge concerns about data privacy and ethical governance can damn adoption. The users might score highly on TAM's ease of use and perceived usefulness constructs but still hesitate to adopt chatbot advice due to sensitivity due to potential harm or misuse of personal health information in this case the HBM framework's perceived risk mechanisms moderate and weaken usefulness, when privacy salience is high. The dialectical shuttling in abduction is crucial as it encourages theory modification by respecifying mechanisms rather than focusing all users behaviour into one fixed model (Bell *et al.*, 2019). This abductive process yields a context-sensitive, mid-range theory of trust in OTC-advice chatbots that specifies which mechanisms operate and under what conditions, guiding the design of trustworthy, accessible tools in both Ireland and India.

3.3 Research Strategy

According to (Saunders *et al.*, 2007) The research strategy is a structured plan that enables a researcher to answer the research questions and meet the study's objectives. A mixed method strategy is adopted for this study combining both quantitative and qualitative to provide a comprehensive understanding of consumer trust in AI chatbots for OTC medication advice in Ireland and India(Bell *et al.*, 2019). The quantitative data will identify patterns in trust levels between countries while the qualitative phase will explore the cultural and regulatory mechanisms underlying these patterns. In phase, the quantitative data will be collected through a structured self-completion survey using standardised questionnaires (Denscombe, 2014). The survey questions are designed to measure key variables such as trust, usability, satisfaction, digital literacy and willingness to follow chatbot responses enabling statistical comparisons between India and Ireland(Forza, 2002). This approach will establish what trust levels and behavioural intentions look like in each context and across the demographic subgroups.

Following the survey analysis, the phase 2, qualitative data will be gathered through semi-structured online interviews to help explain and investigate personal experiences, cultural beliefs and emotional responses in depth supporting the survey results (Denscombe, 2014). In this study, participants(n=6-10) will be selected using purposive sampling to reflect contrasting survey profiles and will include both consumers and pharmacists. Interviews will be conducted through Zoom at a time convenient to the participants each interview lasting for 10-20 minutes. Audio recordings will be made with consent. The interview questions help to explore participant's perspectives on AI chatbot credibility, ease of use and perceived risks of taking advice on OTC medications. The qualitative findings will interpret and expand upon the quantitative differences such as why one country may report higher willingness to follow chatbot advice or what cultural factors, literacy barriers or regulatory perceptions drive these differences. The flexibility of semi-structured interviews allows for themes to emerge naturally ensuring that unanticipated but relevant issues are captured. For example, if survey data shows Indian respondents report higher trust despite low digital literacy, interview questions will probe how necessity, affordability or family reliance influence this paradox. Conversely, if Irish respondents show high ease-of-use scores but low willingness to adopt, interviews will ask about how data privacy, institutional trust, or ethical concerns shape this hesitation. This ensures that qualitative probes are not generic but tailored to illuminate the exact quantitative patterns observed. Integration occurs at the interpretation stage. To handle contradictions the study will treat divergences between quantitative and qualitative evidence as theoretically valuable rather than methodological flaws. For example, if the survey indicates high trust levels but

interviews reveal scepticism, this will be interpreted as evidence of conditional or situational trust that is not fully captured in numerical scales.

Integration occurs at the interpretation stage. Quantitative survey results will identify structural patterns such as literacy moderating trust levels which are then explored in interviews to uncover the underlying cultural or regulatory mechanisms. Qualitative findings will also be used to refine quantitative constructs, for example distinguishing between clinical usefulness and economic usefulness, which may then be re-analysed quantitatively. The integrated displays will be developed that merge statistical patterns with thematic narratives, ensuring that integration is not merely descriptive but contributes to refining and extending theoretical constructs within the conceptual framework.. This approach mirrors Holmberg et.al (2008) cited in (Bell *et al.*, 2019) who demonstrated that combining questionnaires with interviews generated richer insights. This comprehensive approach not only strengthens the validity of the findings but also helps in guiding targeted interventions in diverse healthcare environments.

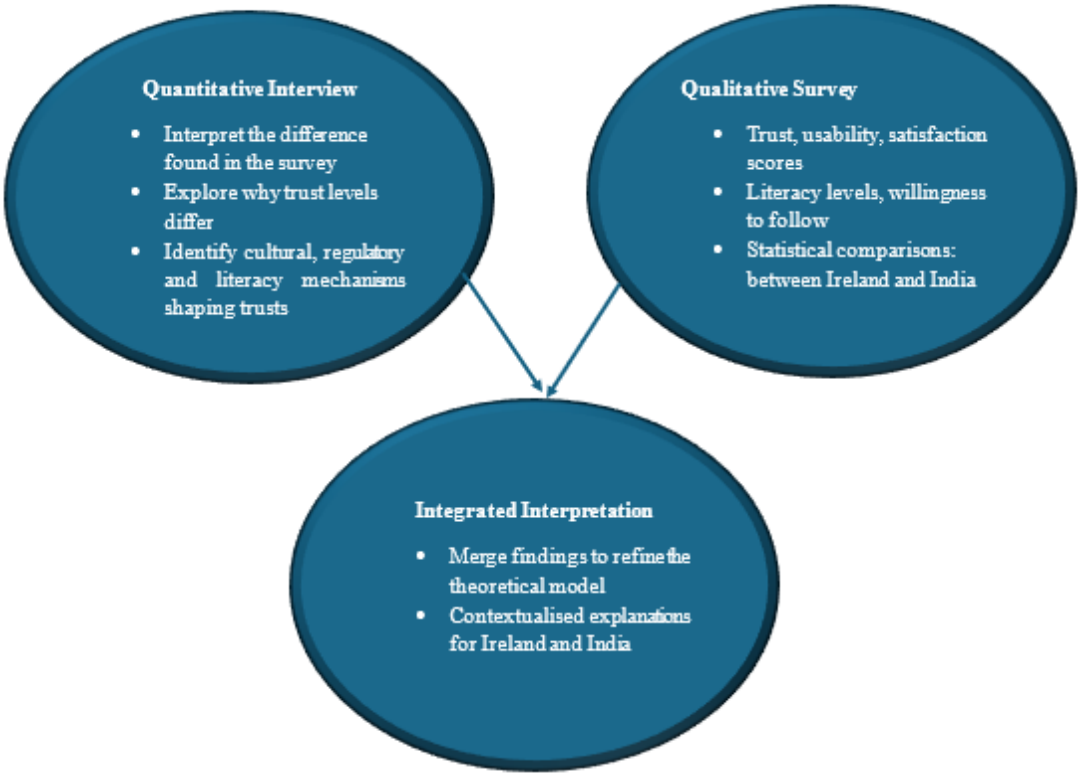

Figure 2: Quantitative and Qualitative Integration

3.4 Data Collection

The primary data collection is collected through a combination of quantitative surveys and qualitative interviews that is designed to gather information aligned with the research objectives systematically(O′Leary, 2021). The online survey starts of with demographic questions before progressing into 5-point Likert scales questions adapted from validated tools such a Digital Health literacy(Nutbeam,2023), Trust in Automation (Hancock *et al.*, 2011) and Technology Acceptance Model(Ma and Liu, 2005; Beldad and Hegner, 2018) to measure usefulness, relevance, ease of use, satisfaction and willingness to follow chatbot advice. The survey explores cultural influence, regulatory awareness, digital literacy and healthcare access and also branches out open-ended questions about their recent experiences using chatbots for OTC medication advice. The non-users will be presented with questions as to what prevents them from using and what conditions might increase their trust in chatbot-provided OTC medication advice.

Table 1:Mapping of Survey Questions to Research Objectives

Research Objective	Construct Measured	Scale / Model Used	Example Survey Item
Evaluate consumer trust, usability, satisfaction in AI chatbots (Ireland & India)	Trust in AI chatbots	Trust in Automation Scale	I believe the chatbot's recommendations are reliable
	Perceived usefulness	Technology Acceptance Model	Using the chatbot improves my ability to choose suitable OTC medication
	Perceived ease of use	Technology Acceptance Model	Learning to use the chatbot was easy for me.
	Satisfaction	Trust in Automation Scale	Overall, I am satisfied with the chatbot's performance for OTC advice

Compare trust & willingness to follow chatbot vs pharmacist advice	Willingness to follow advice	Health Belief Model	I would follow the chatbot's advice for OTC medication without consulting a pharmacist
	Comparative trust	Adapted Trust in Automation items	I trust the advice from a pharmacist more than from a chatbot
Identify sociocultural, regulatory, and literacy factors influencing trust	Health literacy	Digital Health Literacy	How would you rate your Digital Literacy?
	Cultural congruence	Developed for this study	The chatbot's advice fits my cultural and personal health beliefs
	Regulatory awareness	Developed for this study	I am aware of regulations for using AI chatbots for health advice in my country
	Healthcare-seeking norms	Developed for this study	In my culture, self-care is preferred before consulting a health professional

The qualitative phase involves interviews that will focus on evaluating how consumers from Ireland and India deepen their understanding of trust dynamics (O′Leary, 2021). The interview protocol covers introduction and background to establish participant's familiarity and prior experience with AI chatbots such as "have you ever used any AI chatbot to get advice about OTC medications?", then exploring into their experiences and usage patterns and any reasons for non-use. Questions on trust formation is explored by asking what makes participants feel confident in chatbot formation, factors that cause caution and how they verify the advice. Comparative experience questions examine differences between chatbot and pharmacist consultation, general perceptions of public trust as to why they prefer one over the other. Cultural influences were explored through questions like "Do cultural attitudes or local healthcare systems affect how much people trust chatbots? Can you give an example?

Additional topics included attitudes towards transparency, the importance of disclosing limitations, privacy and ethical concerns, desired improvements for greater safety and cultural adaptation, and skills or knowledge needed to use chatbots safely. This flexible, conversational format aligns closely with the study's objectives and conceptual framework presented in Chapter 2(O′Leary, 2021). All interviews will be conducted one-on-one via Zoom according to the participant's convenience will be prioritized. Each will be audio recorded with participant consent and transcribed into Word format for analysis(O′Leary, 2021). To ensure participant confidentiality the recordings and transcripts will be stored on a secure, password-protected device accessible only to the research team. Personal identifiable information will be removed and data will be anonymized. Participants evaluate widely used AI chatbots such as ChatGPT, Gemini, Microsoft Copilot and Perplexity AI. These were chosen because they are widely known and accessible in both Ireland and India and allow free access for common users. Prior to data collection both survey and interview underwent pilot testing with 10 participants (n=5 in each country) to check clarity, cultural relevance and technical functionality ensuring that the tools were fully comprehensible and appropriate for participants both India and Ireland. All the tools are administered in English and the material will be reviewed to ensure the questions are understood across both national contexts. This approach ensures that the data collected is both relevant and directly aligned with the research objectives.

3.5 Sampling

Sampling is the process of selecting a subset of individuals from a larger population to represent the entire group (Hassan, 2024). The study employs a combination of purposive and snowball sampling starting selection of initial participants who meet the specific inclusion criteria relevant to the research objectives. The initial participants are then encouraged further to refer others within their network who also fit the eligibility criteria(Etikan, 2017). This approach helps to broaden the sample and helps reach diverse participants across India and Ireland. The sample size is set at 200 participants with at least 100 respondents from each country assuming a 95% confidence level and a 5% margin of error(Whitehead *et al.*, 2015).This size is justified via power analysis conducted using G*Power 3.1 for detecting medium effect sizes ($d = 0.5$), with an alpha of 0.05 and power of 0.80 the total required sample size is roughly 128 (64 per group) is sufficient for subgroup analyses such as chatbot users versus non-users and demographic strata(Kang, 2021; Wormuth, 2022). The target population consist of adults (18 years above) users and non-users of AI chatbots for OTC medication advice residing in Ireland and India for at least five years to ensure cultural exposure, able to understand and respond in English and either users or non-users of AI chatbots for OTC medication advice within the past 12

months. Exclusion criteria include individuals those unable to provide informed consent, and those unreachable online or unwilling to participate in an interview.

To ensure cultural representativeness with each country the study will employ stratified purposive sampling based on key demographic such as age groups (18—29,30-44,…60+), education levels (primary, secondary, graduate) and gender. Recruitment was done through multiple channels such as online social media advertising, university forums, community organisations, Linkdn and local cultural associations in both urban and rural areas to maximise demographic and cultural diversity.

Potential sampling biases are anticipated and proactively addressed: digital access bias will be mitigated by combining online recruitment with offline referral networks to reach less digitally connected participants; language bias will be managed by limiting inclusion to English-speaking participants due to resource constraints, while ensuring all wording is tested for clarity across respondent groups; and homogeneity bias will be minimised through real-time monitoring of strata quotas and targeted recruitment to under-represented groups.

The surveys will be conducted online using Google Forms, which incorporates Google's standard security measures. The participants must be willing to have a one-on-one interview and provide their informed consent. Participants must have access to a computer or smartphone to participate in Zoom meeting and the online survey. As the study is limited to English-speaking and English-understanding participants in both Ireland and India, all survey and interview materials will be administered in English.

Although the planned sample size was 200, the achieved sample of 153 still exceeds the minimum threshold of 128 indicated by power analysis for detecting medium effect sizes. This means the study remains adequately powered to address Objective 1 (evaluating overall trust, usability, and satisfaction). However, the smaller Irish subsample (n=49) compared to India (n=104) introduces an imbalance that limits the robustness of Objective 3 (cross-cultural comparisons), particularly in subgroup analyses by age, gender, or literacy. While broad cross-national patterns can still be compared findings should be interpreted as exploratory rather than fully generalisable. This limitation is acknowledged in the analysis and discussion and it underscores the need for future research with larger balanced samples across both contexts.

3.6 Data Analysis Framework

Data analysis is the process of examining and transforming raw data into meaningful information and information to knowledge(Chenail, 2012). As per the proposed research design the mixed method approach will be able to provide greater insights into the research.

The data collected through this study will be analysed both quantitatively and qualitatively. This approach allows to capture trends and personal insights of consumer trust in AI chatbots for OTC medication advice. The data collected through online surveys will be exported from Google Forms into Microsoft Excel 365 and analysed using descriptive and inferential statistics in Excel(Forza, 2002).The objective 1 will be addressed through descriptive statistics and reliability analysis for trust, usability, satisfaction, and digital health literacy scales enabling an accurate summary of participant characteristics, trust levels in chatbots versus pharmacists, perceived usefulness, safety, and satisfaction, as well as frequency of chatbot use for OTC advice whilst objective 2 will be examined using independent samples t-tests to compare mean trust scores for chatbots versus pharmacists between Irish and Indian participants and paired-samples t-tests within each country to compare trust levels for chatbots versus pharmacists. Likert-scale variables (e.g., trust scores, satisfaction scores, digital health literacy, likelihood to follow chatbot advice) will also be compared between the two countries using independent t-tests. Objective 3 will be examined quantitatively using one-way and factorial ANOVA to test differences across demographic strata such as ANOVA will test whether digital literacy or socio-economic subgroups (moderators) significantly influence trust scores, while factorial ANOVA across Ireland and India will assess cultural–regulatory moderation. Chi-square tests for associations between categorical variables such as regulatory awareness, cultural congruence, chatbot use category (Wolniak, 2023). Where multiple comparisons are made in ANOVA Bonferroni or Holm–Bonferroni adjustments will control for Type I error(Aickin and Gensler, 1996).

Table 2: Quantitative Analysis Matrix

Research Objective	Variables	Statistical Tests	Framework Link
Evaluate trust, usability, satisfaction in AI chatbots	Trust, usefulness, ease, satisfaction	Descriptive stats, Cronbach's alpha	TAM constructs, Trust in Automation reliability
Compare trust & willingness to follow chatbot vs	Trust on chatbot, Trust on pharmacist, willingness	Paired t-test (within country), independent t-test (between	Pharmacist trust benchmark, trust–accuracy paradox

pharmacist		countries)	
Explore socio-cultural, regulatory, literacy influences	Trust scores, literacy, demographics, usage categories	One-way / factorial ANOVA, chi-square tests, regression	Moderators: literacy, culture, regulation (TAM + Trust in Automation +

Qualitative interview data will be transcribed verbatim, anonymised, and analysed through manual thematic coding in Microsoft Word 365 following the framework described by Braun and Clarke, (2023). Deductive codes will be drawn from the conceptual framework covering TAM (perceived usefulness, ease of use), Trust in Automation (reliability, transparency, appropriateness), HBM (perceived benefits, risks, cues to action), and Digital Health Literacy Theory (self-efficacy). Inductive codes will be generated from participants' narratives to capture emergent cultural, regulatory, and contextual influences. The inductive insights will be compared against deductive categories to determine whether they extend, refine, or contradict existing theoretical constructs(Kiger and Varpio, 2020). For example, if interviews reveal that economic usefulness (time/cost saving) is more salient in India than clinical usefulness, this will lead to recalibration of TAM's usefulness construct. These qualitative themes will be mapped back to the quantitative findings at the interpretation stage to explain observed statistical differences using thematic findings(Bell *et al.*, 2019) such as, if ANOVA shows literacy moderates trust differently in Ireland versus India, interviews will provide narrative explanations of *why* low-literacy participants rely uncritically on chatbots, while high-literacy participants cross-check with pharmacists. Similarly, contradictions will also be analysed such as, if quantitative results suggest a high willingness to use chatbots but interviews express distrust, the analysis will explore how convenience and necessity outweigh safety concerns in practice. This integrated analytical framework ensures that statistical findings test the structural assumptions of the conceptual framework, while qualitative insights refine or expand them.

3.7 Quality and Rigour

To ensure the robustness of the study's findings various strategies were adopted to enhance both reliability and validity in the quantitative strand and trustworthiness in the qualitative strand. For quantitative survey instruments internal consistency will be assessed using Cronbach's alpha with a target >=0.70 (Bonett and Wright, 2014)for each theoretical construct. In addition the instruments for data collection undergo pilot testing in both countries to refine clarity,

linguistic equivalence and cultural appropriateness. In the qualitative strand trustworthiness is addressed through credibility achieved through member checking with participants, dependability maintained through a documented audit trail of decisions made during data collection and analysis, confirmability supported by systematic reflexive journaling to capture assumptions and rationale. Throughout the study the researcher engaged in ongoing reflexivity by maintaining a dedicated journal to critically examine potential biases, decision points and cultural assumptions while also engaging in peer debriefing to challenge interpretations and enhance analytical rigour.

3.8 Ethical Considerations

Ethical considerations are fundamental to ensure that research is conducted responsibly protecting the participant's rights. The key principles include obtaining of informed consent, maintaining confidentiality and ensuring voluntary participation(Sil and Das, 2017). The participants are fully informed about the purpose of the study, their rights, and any potential outcomes, including their right to withdraw from the research at any time without penalty. For online surveys, participants will be required to read an information sheet and electronically confirm consent before proceeding.

The study will comply with the Data Protection Act of 2018, which mandates that all personal information is handled securely and confidentially(Goddard, 2017).All survey data will be collected via Google Forms, which uses secure, encrypted connections. Interview recordings and transcripts will be stored on password-protected devices accessible only to the research team. Personal identifiers will be removed during transcription, and all data will be anonymized for analysis and reporting. Furthermore, the University's ethical guidelines will be strictly followed, and the research has received approval from the relevant ethics committee, further supporting the integrity and credibility of the study.

3.9 Methodological Limitations

While the chosen methodology provides a robust and appropriate framework for exploring consumer trust in AI chatbots for OTC medication advice across Ireland and India, several limitations must be acknowledged. Firstly, all the surveys and interviews are conducted in English. This poses a critical limitation particularly in India where English is not the native language and much of the population is not fluent. This can lead to bias as it may lead to overlooking of critical insights from populations with low literacy rates. This linguistic limitation may direct the findings towards more educated persons. Given the research focus on cultural factors these linguistic barriers may fundamentally restrict the ability to address

Research Question 3 concerning cross-cultural differences in trust as key insights from non-English-speaking communities are excluded.

Secondly, the study relies exclusively on online data collection through Google Forms and Zoom interviews. Though this is efficient the approach excludes individuals without stable internet access or devices such as rural populations and older populations who haven't used digital devices. This digital access barrier limits the diversity of participants and prevents a full understanding of how trust in AI chatbots is shaped among populations with low digital exposure and narrows the scope of insights and disproportionately emphasizes voices of younger, urban and digitally fluent participant's, a factor deeply relevant to the conceptual framework of digital literacy and access.

Further, as a pilot study the sample size of approximately 100 participants per country provides is sufficient for descriptive and comparative insights but it is insufficient for meaningful subgroup analysis across critical variables such as age, gender, education and rural-urban status. This restriction due to linguistic and online-only recruitment biases may not capture fully how trust is shaped in the diversity of the populations of India and Ireland. The findings should therefore be interpreted as exploratory and descriptive rather than representative of broader national populations.

Lastly the study focuses on OTC medication advice and does not reflect consumer trust in AI chatbots for other types of health information thus the findings of this research cannot be generalized to broader AI applications in healthcare. The limitations in language, online-only recruitment and sample size mean the findings cannot be generalized to all consumers nor allow subgroup level comparisons in India and Ireland. However, they provide important preliminary insights and highlight areas requiring more diverse sample research in future studies.

3.10 Conclusion

The chapter has detailed the mixed-methods research design and procedures used to investigate consumer trust in AI chatbots for OTC medication advice across Ireland and India, addressing each research objective. The sequential explanatory design that begins with quantitative surveys for statistical comparisons and is followed by qualitative interviews for contextual explanation ensures robust, integrated insights that directly align with the study's aims. Chapter 4 will present survey results mapped to each objective followed by thematic analysis of interview data that explains statistical trends and uncovers deeper mechanisms of trust.

4 Presentation and Discussion of the Findings

4.1 Overview

In this chapter, the results of the study are described in a logically coherent manner with respect to research objectives, including both qualitative interpretation based on interviews with the participants and quantitative data from the survey. It examines how people trust, use, and are satisfied with AI chatbots receiving over-the-counter medication advice in Ireland and India, showing how the level of trust depends on the role of the chatbot in relation to a human pharmacist. The aspects of cross-cultural factors, such as regulatory frameworks, health and digital literacy, and social norms, are also discussed to account for what may have contributed to differences in the factors of trust. Eventually, demands for safer and more effective adoption are recognised, whilst bridging the gap between empirical evidence, theoretical models, and available literature to create a complete picture of user behaviour.

4.2 Quantitative Findings

4.2.1 *Descriptive Statistics*

The sample comprised 153 respondents, with the majority residing in India (68%), while Ireland represented 32% of participants. This distribution reflects a stronger Indian representation, which may influence cross-country comparisons and highlights a potential cultural skew toward Indian perspectives on AI chatbot trust.

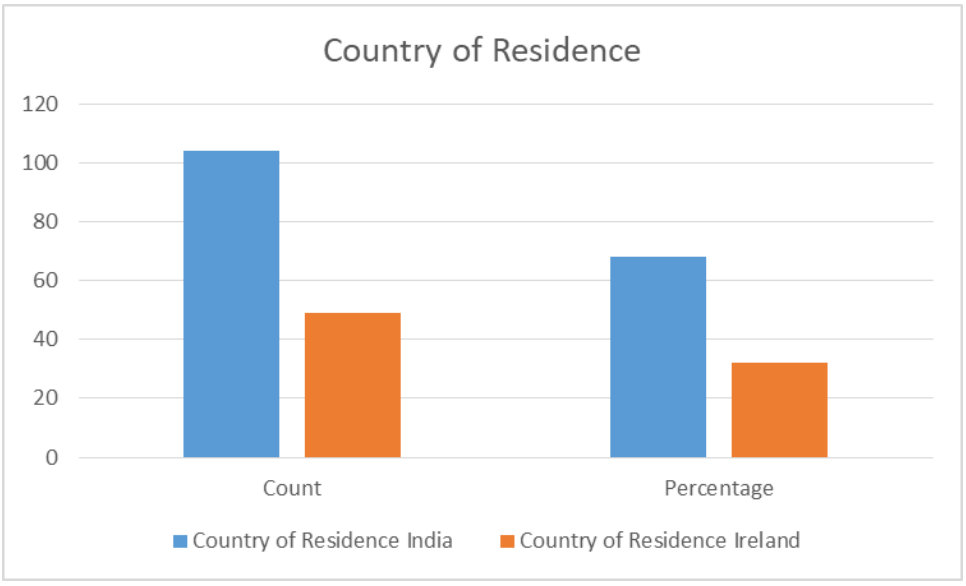

Figure 3: Country of Residence

Out of 153 valid respondents, 52.3% (n = 80) reported that they had used an AI chatbot for OTC medication advice, while 47.7% (n = 73) had never used one. This demonstrates that just over

half of participants have engaged with chatbots in this context, while a substantial proportion remain non-users. The most frequently cited reason was a preference for human interaction particularly with pharmacists or doctors reflecting a perception that human advice carries greater reliability and empathy. Others highlighted a lack of trust in the accuracy of chatbots or concerns about data privacy and security echoing themes from the qualitative analysis. A smaller group noted that they had never felt the need for such tools either because their healthcare access was sufficient or because they preferred traditional approaches such as consulting family members.

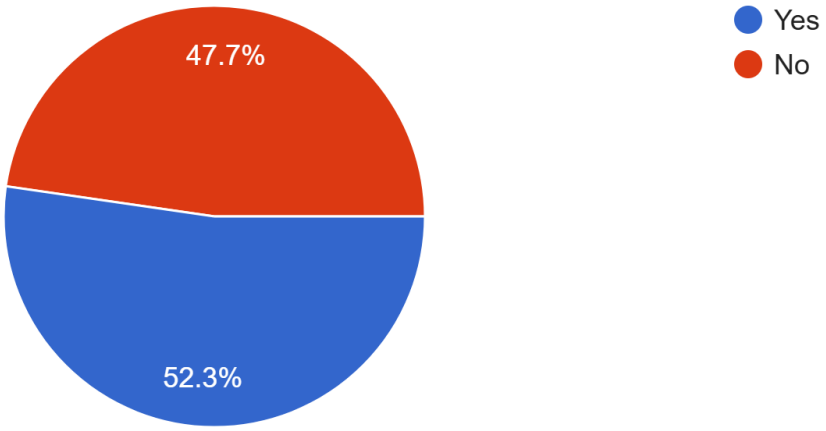

Figure 4 :Users Vs Non-users

Interestingly, when asked what might encourage them to adopt chatbots in the future, non-users most often mentioned greater transparency about chatbot limitations, clearer regulation, and the ability to verify advice against trusted human sources. This indicates that non-users are not universally resistant but would consider using chatbots if reassurances around safety, privacy, and reliability were more robust. Together, these findings emphasise that non-use is not simply a matter of unfamiliarity but is shaped by deliberate trust decisions.

In terms of age, the largest groups were 25–34 years (32%) and 18–24 years (28%), indicating that younger adults formed the bulk of the sample. Middle-aged groups such as 45–54 years (16%) and 55–64 years (14%) were also present, though less represented, while older adults aged 65+ years comprised only 2%. This suggests that insights are predominantly shaped by younger, digitally engaged respondents who are more likely to interact with AI technologies.

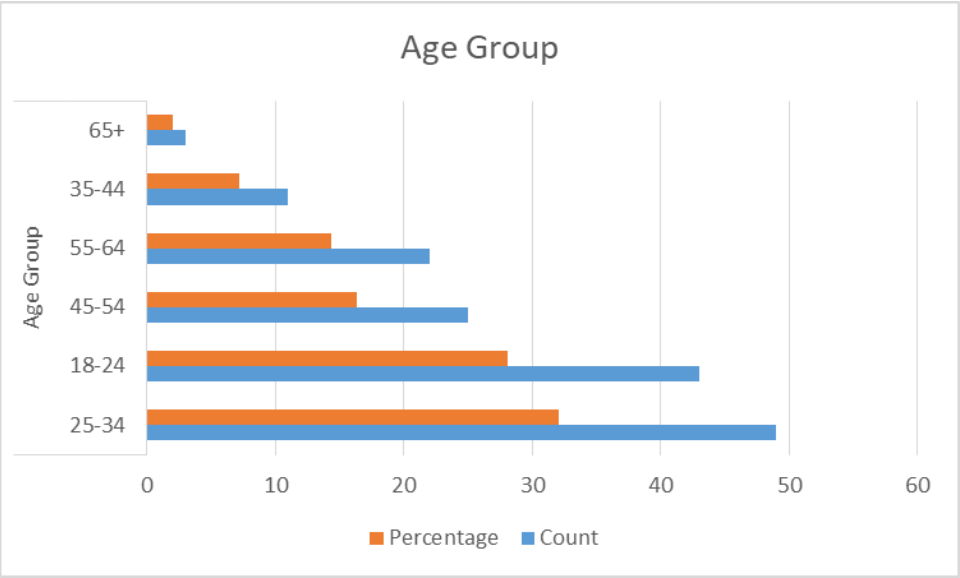

Figure 5: Age Group

Gender distribution shows a slight male dominance, with 60% male and 40% female respondents, reflecting a moderate gender imbalance in the dataset. This may influence interpretations of chatbot trust, as prior studies suggest gender can shape attitudes toward digital health technologies.

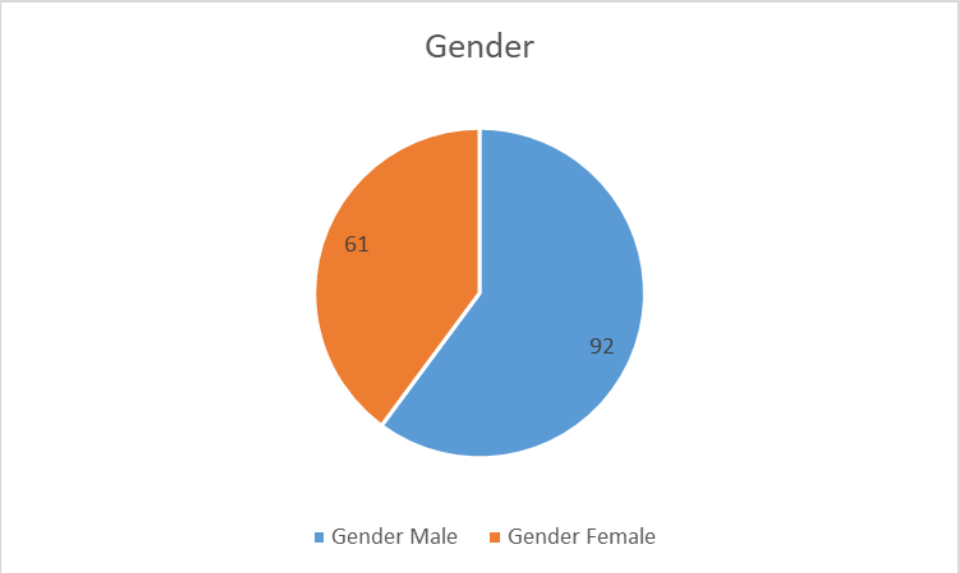

Figure 6:Gender

Educational background indicates that the majority were well-educated, with 51% holding a bachelor's degree and 39% a postgraduate degree. Smaller proportions reported secondary school education (5%), vocational qualifications (3%), or advanced degree such as doctorate and PharmD (1% each). The dominance of participants with higher education implies that respondents were generally digitally literate and capable of critically evaluating AI chatbot

advice. This high literacy profile should be kept in mind: while it supports the reliability of responses, it also means the findings may not fully capture the experiences of lower-literacy groups where trust dynamics may differ.

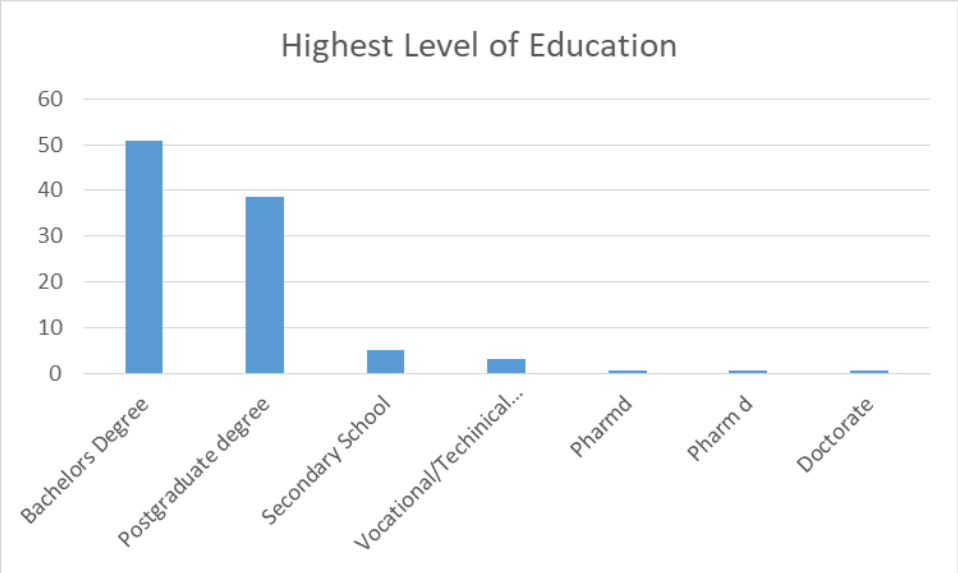

Figure 7: Highest Level of Education

Overall, the descriptive statistics highlight a younger, educated, and predominantly Indian male sample, providing important context for interpreting trust, satisfaction, and cross-cultural differences in AI chatbot use for OTC medication advice.

Table 3: Descriptive Statistics

Variable	Category	Count	Percentage
Country of Residence	India	104	67.97
	Ireland	49	32.03
Age Group	25-34	49	32.03
	18-24	43	28.1
	45-54	25	16.34
	55-64	22	14.38
	35-44	11	7.19
	65+	3	1.96
Gender	Male	92	60.13
	Female	61	39.87
Highest Level of Education	Bachelor's degree	78	50.98
	Postgraduate degree	59	38.56
	Secondary School	8	5.23

	Vocational/Technical Qualification	5	3.27
	PharmD	1	0.65
	Pharmd	1	0.65
	Doctorate	1	0.65

Digital literacy levels among chatbot users showed a skew toward higher competence with the majority identifying as intermediate (n = 35) or advanced (n = 26) users. A smaller proportion reported being experts (n = 9), while 10 participants described themselves as beginners. This reflects that those comfortable with technology are more likely to experiment with chatbots, while lower-literacy groups remain underrepresented.

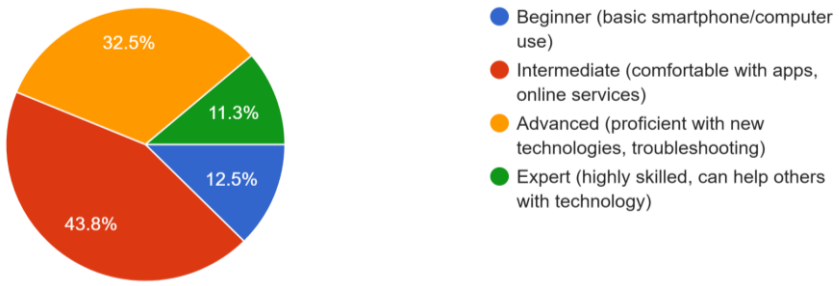

Figure 8: Digital Literacy

In terms of usage patterns, most respondents reported using chatbots for OTC medication advice only occasionally. In the past 12 months, 42 respondents had used them 2–5 times, 17 only once, and smaller numbers reported 6–10 uses (n = 9) or more than 10 uses (n = 12). This indicates that chatbot use is largely sporadic rather than habitual, with few individuals integrating them into regular healthcare decision-making.

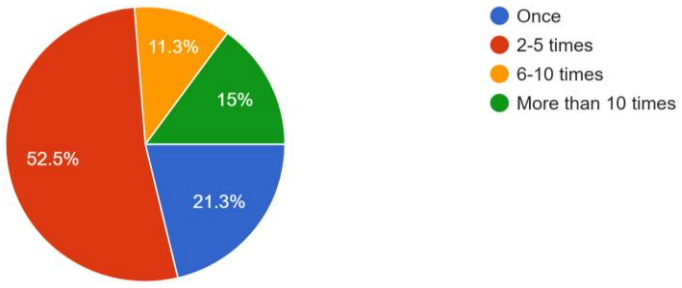

Figure 9: Usage Patterns

What influenced their decision to first use a chatbot for OTC advice, convenience and accessibility were by far the most common drivers (n = 29 mentions), followed by curiosity about the technology (n = 7) and recommendations from others (n = 7). A

smaller group cited cost considerations (n = 4) or privacy and anonymity (n = 4) as motivating factors. These findings highlight that ease of access and time savings are the strongest enablers of initial adoption.

4.2.2 *Reliability Analysis*

The reliability analysis was conducted using Cronbach's Alpha to assess the internal consistency of the scales measuring trust and satisfaction with AI chatbots. The trust in AI chatbots scale achieved a Cronbach's Alpha of 0.83, while the satisfaction scale recorded a value of 0.73. According to Bonett and Wright, (2014) Cronbach's Alpha coefficient of 0.70 or above is considered an acceptable threshold for demonstrating adequate internal consistency in social science research. Therefore, both scales in this study surpass the recommended benchmark, indicating that the items used to measure trust and satisfaction are internally reliable and measure their intended constructs consistently. The higher reliability score for the trust scale suggests stronger coherence among its items compared to the satisfaction scale, though both remain acceptable. These results support the use of the scales for further statistical analysis in assessing consumer trust and satisfaction with AI chatbots.

Table 4: Reliability Analysis

Scale	Cronbach Alpha
Trust in AI Chatbots	0.82625
Satisfaction with AI Chatbots	0.72731

The formula is: $\alpha = (k / (k - 1)) * (1 - (\Sigma(\sigma^2 i) / \sigma^2 t))$

k = *Number of items in scale.*

$\Sigma(\sigma^2 i)$ = *Sum of variances of individual items.*

$\sigma^2 t$ = *Variance of the total scores*

4.2.3 *Comparison Data*

The comparison of mean scores between Ireland and India reveals important cross-cultural differences in consumer trust and satisfaction with AI chatbots for OTC medication advice. Overall, respondents in India reported slightly higher trust (M = 3.17) and satisfaction (M = 3.58) compared to those in Ireland (M = 3.02 for trust; M = 3.43 for satisfaction). Although both groups hover around the mid-point of the scale, this indicates a modestly stronger acceptance of

AI chatbots among Indian consumers. When asked whether they would follow chatbot advice without consulting a human professional, both groups expressed reluctance, with mean scores below 3. Irish respondents scored slightly higher (M = 2.56) than Indian respondents (M = 2.40), suggesting a marginally greater willingness in Ireland, though overall findings highlight a strong reliance on pharmacists for confirmation.

Perceptions of chatbot knowledgeability and accuracy differed more noticeably. Indian respondents expressed higher trust in the knowledge of chatbots about OTC medications (M = 3.35) compared to their Irish counterparts (M = 2.94). Similarly, trust in the accuracy of chatbot advice was higher in India (M = 3.19) than in Ireland (M = 2.84). These differences suggest that Indian consumers may be more open to considering AI-generated information credible, potentially reflecting greater demand for accessible healthcare advice in contexts where pharmacists may be less accessible or more costly. Convenience was also rated higher in India (M = 3.35) than in Ireland (M = 2.84), reinforcing the idea that chatbots fill an accessibility gap in India. However, in both countries, respondents rated ease of understanding chatbot advice relatively high (M = 3.78 in Ireland; M = 3.75 in India), indicating that usability is not a major barrier to adoption.

Taken together, the findings illustrate a nuanced trust–accuracy paradox. While Indian consumers report stronger perceptions of chatbot accuracy, knowledgeability, and convenience, they remain reluctant to act on chatbot advice without professional validation. Irish consumers, by contrast, show slightly lower trust but are marginally more willing to follow chatbot guidance independently. These results highlight that cultural context and healthcare access factors significantly shape attitudes toward AI in healthcare.

Table 5: Comparison Data

Variable	Country	Mean Score
trust score	Ireland	3.023
trust score	India	3.174
satisfaction score	Ireland	3.425
satisfaction score	India	3.575
I would follow AI chatbot advice without consulting a human professional	Ireland	2.563
I would follow AI chatbot advice without consulting a human professional	India	2.396
trust in information AI chatbots are knowledgeable about otc	Ireland	2.938

medications		
trust in information AI chatbots are knowledgeable about otc medications	India	3.354
I trust the accuracy of the otc medication advice provided by AI chatbots	Ireland	2.844
I trust the accuracy of the otc medication advice provided by AI chatbots	India	3.188
AI chatbots are a convenient source for otc medication advice	Ireland	2.844
AI chatbots are a convenient source for otc medication advice	India	3.354
the advice from AI chatbots is easy to understand	Ireland	3.781
the advice from AI chatbots is easy to understand	India	3.750

$x¯=\sum i=1nxinx¯=n\sum i=1nxi$

Where:

$x¯$ *represents the mean score.*

$\sum\sum$ *(sigma) denotes the summation.*

xi represents each score or value in the dataset.

*n represents the total number of scores or values in the dataset***.**

4.2.4 *Anova*

The ANOVA results demonstrate interesting patterns regarding demographic influences on trust and satisfaction in AI chatbots. For trust score, gender differences were statistically significant ($F = 4.053$, $p = 0.048$), indicating that males and females vary in their trust levels toward AI chatbots. Post-hoc analysis further confirmed that this difference lies between male and female groups, with females generally showing different levels of trust compared to males. By contrast, age group ($p = 0.080$) and highest level of education ($p = 0.907$) did not significantly affect trust, suggesting that educational attainment and age were not major determinants of chatbot trust.

For the satisfaction score, a significant effect was observed across age groups ($F = 3.800$, $p = 0.007$). Post-hoc comparisons revealed that the main variation occurred between the 25–34 and 35–44 age groups ($p = 0.004$), with younger adults (25–34) reporting higher satisfaction than those aged 35–44. No significant differences emerged for gender ($p = 0.095$) or education ($p = 0.637$), suggesting satisfaction with chatbots is broadly consistent across these categories. Overall, findings highlight younger adults appear more comfortable and receptive to chatbots but the moderate size of the effect means satisfaction differences across age groups are not so

large as to constitute a major usability barrier for older participants. This highlights that while age shapes familiarity, it does not create insurmountable divides in chatbot acceptance..

Table 6: ANOVA

Dependent Variable	Grouping Variable	F-statistic	p-value
trust_score	age_group	2.176	0.080
trust_score	Gender	4.053	0.048
trust_score	Gender	N/A (Post-hoc)	N/A (Post-hoc)
trust_score	gender (Post-hoc)	Female vs Male	0.048
trust_score	highest_level_of_education	0.184	0.907
satisfaction_score	age_group	3.800	0.007
satisfaction_score	age_group	N/A (Post-hoc)	N/A (Post-hoc)
satisfaction_score	age_group (Post-hoc)	18-24 vs 25-34	0.251
satisfaction_score	age_group (Post-hoc)	18-24 vs 35-44	0.154
satisfaction_score	age_group (Post-hoc)	18-24 vs 45-54	0.992
satisfaction_score	age_group (Post-hoc)	18-24 vs 55-64	0.961
satisfaction_score	age_group (Post-hoc)	25-34 vs 35-44	0.004
satisfaction_score	age_group (Post-hoc)	25-34 vs 45-54	0.343
satisfaction_score	age_group (Post-hoc)	25-34 vs 55-64	0.829
satisfaction_score	age_group (Post-hoc)	35-44 vs 45-54	0.528
satisfaction_score	age_group (Post-hoc)	35-44 vs 55-64	0.077
satisfaction_score	age_group (Post-hoc)	45-54 vs 55-64	0.890
satisfaction_score	Gender	2.860	0.095
satisfaction_score	highest_level_of_education	0.569	0.637

F = (Mean Square Between Groups) / (Mean Square Within Groups)

4.2.5 *T-test*

Independent sample t-tests were conducted to compare Ireland and India on key variables. Results show no statistically significant difference in overall trust scores ($p = 0.326$) or satisfaction scores ($p = 0.388$) between the two countries, suggesting broadly similar perceptions. Likewise, willingness to follow chatbot advice without consulting a professional was low in both samples, with no significant difference ($p = 0.572$). However, near-significant differences were found in perceptions of chatbot knowledgeability ($p = 0.101$) and accuracy ($p = 0.116$), where Indian respondents tended to rate chatbots more positively than Irish respondents. Importantly, a borderline significant difference was observed for convenience ($p = 0.051$), with Indian participants rating chatbots as more convenient sources of OTC advice. No

differences were observed in perceptions of advice clarity (p = 0.893), indicating that chatbot usability is consistent across contexts.

These results reinforce that while cross-country differences are modest, Indian respondents appear slightly more positive about chatbot knowledge, accuracy, and convenience. Nevertheless, the absence of strong statistical significance suggests that cultural or systemic differences, while present, may not yet be sharply pronounced, indicating a cautious but comparable level of trust across both regions.

Table 7: t-test

Variable	Country 1	Country 1 Mean	Country 2	Country 2 Mean	t-statistic	p-value
trust score	Ireland	3.02344	India	3.17361	-0.9905	0.32571
satisfaction score	Ireland	3.425	India	3.575	-0.8686	0.3884
I would follow AI chatbot advice without consulting a human professional	Ireland	2.5625	India	2.39583	0.56835	0.5718
Trust in information 1ai chatbots are knowledgeable about OTC medications	Ireland	2.9375	India	3.35417	-1.6681	0.10093
I trust the accuracy of the OTC medication advice provided by AI chatbots	Ireland	2.84375	India	3.1875	-1.5938	0.11551
AI chatbots are a convenient source for OTC medication advice	Ireland	2.84375	India	3.35417	-1.9959	0.05062
The advice from AI chatbots is easy to understand	Ireland	3.78125	India	3.75	0.13487	0.89314

4.2.6 *Chi-Square*

The chi-square analysis was performed to examine the association between demographic variables and country of residence. Results show a significant association between age group

and country of residence (χ^2 = 32.07, p < 0.001), suggesting that the age distribution of respondents differs across Ireland and India. This implies that Indian participants were generally younger, whereas Irish respondents were more evenly distributed across older age groups, which could influence attitudes toward chatbot trust and adoption. Similarly, a significant association was observed between education level and country of residence (χ^2 = 15.38, p = 0.02). This finding highlight that the educational composition of respondents varies by country, with India showing a higher concentration of bachelor's and postgraduate degree holders compared to Ireland. Such differences are important, as education strongly correlates with digital health literacy, a known factor shaping trust in AI tools.

In contrast, no significant association was found between gender and country of residence (χ^2 = 0.00, p = 1.00), indicating balanced male–female participation across both samples. Overall, chi-square findings suggest that age and education differences between the Irish and Indian respondents must be considered when interpreting cross-country trust and satisfaction results, as these demographic variations may partially account for observed differences.

Table 8: Chi-Square

Variable 1	Variable 2	Chi-square statistic	p-value	Degrees of Freedom
country of residence	age group	32.07	0.00	5.00
country of residence	Gender	0.00	1.00	1.00
country of residence	highest level of education	15.38	0.02	6.00

$\chi^2 = \Sigma\ [\ (O - E)^2 / E\ ]$

*DF=(Number of Rows - 1) * (Number of Columns - 1)*

Where:

- *O represents the observed frequency in each category.*
- *E represents the expected frequency in each category, assuming no relationship between the variables.*
- *Σ indicates the summation across all categories.*

4.3 Qualitative Findings

4.3.1 *Theme 1: Trust and Confidence in AI Chatbots*

Definition and how it emerged: Across participants, trust in AI chatbots emerged as conditional and context-dependent. Participants valued chatbots for quick, general information,

but hesitated to rely on them for specific or critical medical advice. For example, Participant 1 noted that:

"Trust it for basic symptoms,"

While Participant 3 emphasized that:

"AI is giving a very general advice… I would prefer somebody… who understands… human anatomy."

This indicates that trust is limited when personal health history and nuanced clinical judgment are required. A recurring factor driving this skepticism is the lack of accountability and human interaction in AI systems. Pharmacists and healthcare professionals are perceived as more reliable due to their expertise and ability to offer tailored advice, as noted by Participant 2, who stated that:

"AI is all. It's digital, right? There is no human touch to it. But a pharmacist, I know that person is educated, that person has taken a degree in pharmacy. They know about medicines. They know about human symptoms and human anatomy and what is going on. So I would prefer somebody who is, you know, educated, who has got a formal degree, who understands or has done years of studies in medicine to grab them, and AI chatbot, who is human, has given some instructions to some coding to whatever, and they are giving a generalized answer."

Additionally, participants expressed concerns over technical jargon, which creates barriers to understanding and further limits trust. Transparency about AI limitations was emphasized to build confidence for example Participant 4 reflected:

"Without looking someone's eyes, it's hard to me to believe the advice is correct. There is no personal connection, so I prefer to visit directly."

Aligning with Kauttonen *et al.*, (2025), trust is influenced by perceived usefulness and ease of understanding; participants indicated they would consider chatbots more reliable if the advice was clear, verified, and culturally adapted. Participant 5 (Pharmacist) also stated that trust increases only when AI advice aligns with trusted references:

"I feel confident when the chatbots advice line up closely with what I know from the trusted clinical guidelines… if they explain the reasoning or cite reputed sources, that increases my trust."

These findings support prior studies (Prakash and Das, 2024) showing that trust in AI healthcare tools grows when users feel supported by additional verification mechanisms, such as pharmacist consultation or cross-referencing with credible sources.

4.3.2 *Theme 2: Barriers and Concerns*

Definition and how it emerged: Participants highlighted that trust in AI chatbots for OTC medication advice is conditional and often linked to prior knowledge, consistency, and external verification. Participant 1 stated:

"I feel much more confident if the advice I get mad with information I have already read about or something I have been told before by a pharmacist"

Similarly, Participant 2 explained that trust develops when chatbot advice aligns with familiar sources:

"When it's consistent with the usual medical advice I get from my friends, family or my and especially from my doctors, when the chat, when the Chatbot is consistent with what I have heard From my life, I am more inclined to believe."

Participant 3, however, expressed more caution, noting,

"I don't think so. I would want to try using AI for medical advice, but even if I try, I would just want to compare two different medicines that were prescribed for the pharmacy. What is it for or GP has given, whatever medicines that the GP or the pharmacist has prescribed before? I would like to match it other than that, I don't think so. I would want to go more in detail, or consider AI for medication"

All participants described strategies for verifying AI advice before acting. Participant 1 said,

"So I'm not fully sure about that. What the chat would say is my next step is usually to just bring the pharmacy active call. Feels more reassuring and reliable for me."

Participant 2 cross-checked with family:

"Most, most frequently, I ask my parents, because they are more accessible to me. So before taking any medicine that a random chat board has generated, I consult someone who is not no at least kind and knowledgeable, which I can trust."

Participant 3 emphasized professional consultation:

"a chatbot? See, the best possible thing is to definitely go to a pharmacist, and ask for advice. The second thing is, my daughter, because she's more tech savvy, she might know it much better than that, but yeah, these are the two ways."

Participant 4 added that rural consumers rely on community validation: *"If I was unsure, I'll ask my parents, neighbours or some local pharmacies. That's how we always done that before."*

Pharmacists described verification through professional channels. Participants 5 and 6 noted respectively :

"I don't take anything at face value. I double check through Micromedex or the Irish Board of medicine support resources before confirming anything."

"I always double check the India-specific databases or use our pharmacy professional networks online for confirmation."

This theme illustrates that trust in AI chatbots is not absolute; participants rely on familiarity, consistency, and human verification to validate the advice, highlighting the complementary rather than substitutive role of AI in healthcare decision-making.

4.3.3 *Theme 3: Human versus AI Comparison*

Definition and how it emerged: Participants consistently highlighted a preference for human pharmacists over AI chatbots due to the personal touch, accountability, and ability to clarify doubts. Participant 1 said:

"Pharmacist reassures me more, because I can actually ask all of questions with AI, it feels harder to dig deeper into details of clarify doubts."

Participant 2 emphasized responsibility, stating:

"Um, mostly even even if, in my opinion, even if a specific a has no responsibility for the health advice it gives, if it gives an advice, even even if it has a 99.99% accuracy in giving accurate health advice that 0.01 percentage of it."

Participant 3 described the value of expertise and human interaction:

"see, AI is all. It's digital, right? There is no human touch to it. But a pharmacist, I know that person is educated, that person has taken a degree in pharmacy. They know about medicines. They know about human symptoms and human anatomy and what is going on."

Pharmacist reinforced this distinction as Participant 5 stated:

"With a pharmacist consultation, we can dig into the personal, specific histories… that level of tailoring makes a huge difference."

Participant 6 endorsed a blended approach:

"Chatbots can provide acute responses, but for complex health scenarios, pharmacists can piece together the patient's history, allergies and preferences in a way that AI cannot."

Despite recognizing the convenience of AI, participants indicated its role as supplementary. Participant 1 noted:

"If it's a simple situation, like a mild headache or basic cold, I think the chatbot is fine because but it seems like tricky or more serious, I had definitely prefer speaking to your pharmacist."

Participant 2 added:

"So just for common knowledge stuff which I can just verify, I would use chat boards. Otherwise, I would prefer a health medical expert."

Participant 4 reflected the same view:

"As a human, every single time for advice, I feel much deeper the way to visit directly to the pharmacies or hospitals."

These insights show that human expertise and relational interaction remain central to healthcare decision-making, with AI serving a supportive function rather than a replacement.

4.3.4 *Theme 4: Cultural and Contextual Influences*

Definition and how it emerged: Cultural norms and healthcare system accessibility strongly influenced participants' trust in AI chatbots. Participant 1 noted:

"Oh, in Ireland, I think people still learn more towards advice from professionals, rather than replaying fully on chatbots. There is a Cultural Trust in pharmacists and doctors."

Participant 2 reflected on Indian contexts:

"Um, um, I do think huge lot of people, especially among the younger generation, do trust AI in almost everything."

Participant 3 highlighted the value of personalized care in Ireland:

"Yes, people here put a lot of value on personal care. I think so. It's part of a culture to build trust with our healthcare providers."

Participant 4 emphasized that in rural India, technology plays a very limited role:

"I feel in rural areas like mine, almost no one uses AI for health advice. Trust is built through the relationship, and not technology."

Healthcare systems also play a key role in adoption. Participant 1 explained:

"Oh, since the healthcare system here make it fairly and easy to access a pharmacist, there isn't much pressure to depend only on a chatbot, because knowing I can always reach out to a professional make me feel more secure."

Participant 2 added:

"In our context, there can be times when proper medical access or getting a good doctor, especially a good doctor who is bit busy, could be really tedious task. So maybe I could see, I could see a being, not only convenient, rather giving quick advices, which we can act on."

Participant 5 confirmed this in the Irish context:

"Our healthcare system makes it relatively easy to access professional advice, so there's less incentive to depend fully on AI."

Participant 6 noted the contrast within India:

"In India, patients often involve their family in decision… so even if they use an AI chatbot, the family's opinion can outweigh the chatbot."

Participant 3 emphasized privacy concerns shaped by local regulations:

"In Ireland… everybody's personal details are very much secured… so privacy in AI needs to be guaranteed."

Overall, these perspectives indicate that trust and use of AI are mediated by cultural values, perceived reliability, and healthcare infrastructure, affecting the degree to which chatbots are integrated into daily health decisions.

4.3.5 *Theme 5: Desired Improvements for Adoption*

Definition and how it emerged: Participants suggested that safety, transparency, and cultural adaptation are critical for increasing AI chatbot adoption in OTC medication advice. Participant 1 emphasized:

"Built-in risk flags in a chatbot would definitely improve my trust… I would feel like a safer and more reliable system."

Participant 2 highlighted language and cultural relevance:

"Adding local languages like Hindi, Tamil, Malayalam, Telugu… and giving advice in a way that is more understandable to a layman… would help us trust it more."

Participant 3 stressed simplicity and clear disclaimers:

"The language should be extremely simple for any person to understand… always end it with 'please check with your personal pharmacist'… I definitely do not want to completely entrust AI."

Transparency about limitations was another key point. Participant 1 remarked:

"Chatbot should make it clearer when it's not fully certain… that way I know when to double-check with the pharmacist."

Participant 2 reinforced this:

"It should be more transparent about its limitations and its ability to become wrong at times… especially in the medical context."

Pharmacists also emphasized safeguards. Participant 5 suggested:

"They should cite their sources, highlight warning signs, and be regulated like other medical tools."

Participant 4 reflected rural needs:

"It should work offline, use local languages, have government approvals, and always remind people to check with a human Health Worker before using this."

Collectively, these responses indicate that trust, clear communication, contextual adaptation, and safety mechanisms are fundamental for improving user confidence and the broader adoption of AI chatbots in healthcare settings.

4.4 Discussion

4.4.1 *Objective 1: Evaluate consumer trust, usability, and satisfaction in AI chatbots for OTC medication advice*

The results reveal that, about AI chatbots, convenience represents one of the main engagement factors, which aligns with the previous research underlining fast and non-judgmental access to advice (Parry and Aneja, 2020; Parviainen and Rantala, 2022; Chakraborty et al., 2023). The usability scores are remarkably high on quantitative results, as the participants were urban, digitally literate, which supports the main assertions of TAM, which focuses on the ease of use and usefulness (Ma and Liu, 2005). Nonetheless, the qualitative interviews demonstrate that low digital and health literacy, along with not being familiar with medical terminology and lacking privacy, cause a severe restriction in satisfaction and trust, especially in India. This conforms to that of Nutbeam (2023), who emphasizes literacy as a gateway and a barrier. Chatbots provide advice that is often complemented by a professional consultation or even familial guidance, and, as such, satisfaction can be only attributed to a perceived sense of safety or reassurance, and not utility in and of itself. Regulatory background also influences perceived usability; Irish participants mentioned that the presence of institutional control and good data privacy contributed to the feeling of trust as well, whereas Indian participants expressed a feeling of reluctance due to the patchiness of the regulation and inequalities of access, mirroring Bagga et al. (2024). In general, the convenience factor is not enough to create satisfaction and trust, which is, in turn, mediated through literacy, cultural conventions, privacy protection and blending with other types of professional support. These results indicate a highly contingent uptake of AI chatbots as OTC advice providers and prioritize culturally and literacy-elastic design in maintaining a balance between inclusion and safety.

4.4.2 *Objective 2: Compare consumer trust and willingness to follow AI chatbot advice versus human pharmacist recommendations*

Participants consistently reported a preference for human pharmacists over AI chatbots when giving OTC medication advice and saw the benefits of personalized assessment, accountability, and clinical experience. This corresponds to other reports in the literature that note the fallibility of trust in automation models as it can appear despite recognition of error yet fail to replace the judgment of a human in the crucial situation (Andrikyan et al., 2024; Shiferaw et al., 2024;

Khatri et al., 2025). The quantitative data show a medium level of willingness to take chatbot advice among the digitally literate consumers, whereas the qualitative data depict the conditional trust that can only be explained by being cross-verified by knowledgeable family members or pharmacists, which is indicative of the interaction characterizing trust. The cross-cultural differences are tangible: in Ireland, governmental regulation and privacy measures create trust in AI as an assisting agent, in contrast to India, where fragmented healthcare, wealth inequality, and language variations decrease the perceived trustworthiness, which are characteristics that are in line with Prakash and Das (2024) and Bagga et al. (2024). Trust is determined by not only perception of accuracy but emotional confidence, and access and need that provide trust; this is what is described as trust-accuracy paradox (Nortje, 2024). These results indicate that, in addition to being more convenient, the adoption of AI chatbots relies on the effectiveness of complementarity with human-expert knowledge, regulatory trustworthiness, and culture-specific trust-formation processes. Altogether, policies and design strategies are required to encompass systemic, cultural, and literacy factors with the view of enhancing willingness to take action based on AI-generated OTC recommendations.

4.4.3 *Objective 3: Analyse cross-cultural variations in trust determinants and identify key influences*

The results indicate that there are cross-cultural differences in factors influencing trust in AI chatbots to seek OTC medication advice. In Ireland, the issue of trust is significantly informed by institutional credibility, regulatory control, and data privacy protection, as is the case in the EU AI Act (EU AI ACT, 2025; Goddard, 2017). Users were confident in AI chatbots when they had a sense of compatibility with formal systems of care and when they were confident in the protection of their privacy, which confirms the literature statement that systemic trust is one of the key determinants (Prakash and Das, 2024; Kauttonen et al., 2025). However, the Indian participants base their trust on necessity, availability, and peer recommendation, i.e., family or community feedback, due to a less unified healthcare system and the lack of strict regulations (Bagga et al., 2024; Verma et al., 2020). Trust is also mediated by digital and health literacy: after receiving the advice, high-literacy users are in a position to refine it critically, whereas low-literacy users will fall prey to misinformation and over-trust an AI message (Nutbeam, 2023). The relationship among convenience, literacy, and systemic oversight shows the sense in which Western-based paradigms such as TAM or Trust in Automation (Ma and Liu, 2005; Hancock et al., 2011) may be ineffective in explaining culturally specific probabilities. These data highlight the context-dependent nature of trust factors, which is influenced by the regulatory power and the accessibility, literacy rates, and sociocultural values, and their importance in creating AI medical applications, namely, they must be cross-culturally adapted.

Participants indicated some areas where improvements can be made to help in the adoption of AI chatbots to offer OTC medication advice. One of them is the simplification of language and presentation to the needs of non-expert users, which is in agreement with Nutbeam (2023) and Bagga et al. (2024), who focus on literacy-sensitive design. Clarity on the structural limitations, risks, and boundaries of the advice received is important so as to avoid over-trusting the advice and keep safety levels intact, as observed in previous research (Nortje, 2024; Abanmy et al., 2025). Strong confidentiality and data protection were reiterated in many cases, considering cultural sensitivities in Ireland and India, and corroborated in other findings of systemic trust as an influencing factor (Goddard, 2017; Verma et al., 2020). Interconnection with human supervision, including pharmacists or close relatives, was considered an absolute priority to make AI suggestions reliable enough (Nutbeam, 2023; Shiferaw et al., 2024). Culturally related health content, as well as cross-cultural adaptation, are also needed to make usability more convenient and equitable, mirroring concerns of Western-centric models (Bagga et al., 2024; Prakash and Das, 2024). Generally, the advances to be made must solve the literacy, privacy, regulatory, and cultural context issues to increase trustworthy and safe AI chatbot adoption across various healthcare settings. A further consideration in interpreting these findings is the reduction in sample size from the planned 200 to 153 participants. This shortfall, combined with the dominance of younger, urban, and digitally literate respondents, limited the representativeness of the data. As a result, some nuances such as the perspectives of older adults, rural populations or less digitally connected groups are not fully captured. While survey results showed moderate trust in chatbots the smaller sample size makes it difficult to generalise these trends across broader national populations. Nevertheless, the mixed methods approach especially the inclusion of interviews helped to contextualise and enrich these survey findings.

4.5 Chapter summary

The discussion shows that trust in AI chatbots is the result of a complex interplay between usability, perceived accuracy, literacy, and cultural context. Whereas Irish users are driven by the protection of their privacy through institutional practice, Indian users face the needs of their existence and social support in poor healthcare. Human parity is a vital point of assessment to keep in mind, and such refinements as the use of clearer language, transparency, and privacy protection are necessary. These results support the conclusion that culturally sensitive, literacy-adapted designs are a must, notwithstanding the shortcomings of the Western-centric adoption and trust models. All in all, the research demonstrates that the use of AI chatbots demands equilibrating usability, safety, and trust conditions dependent on context.

5 Concluding Thoughts on the Contribution of this Research, its Limitations and Suggestions for Further Research

5.1 Overview

This chapter presents the concluding thoughts of the research. It brings together the main findings to address the research questions, highlighting their implications for understanding consumer and professional trust in AI chatbots for OTC medication advice across Ireland and India. The chapter also outlines the limitations regarding the sample size and scope followed by suggestions for future research directions. The chapter reflects on the overall significance of the study and the role of cultural and professional factors in shaping the trust and acceptance of AI in healthcare.

5.2 Implications of Findings for the Research Questions

The research explored how consumers in India and Ireland perceive and trust AI chatbots for OTC medication advice and how these perceptions differ across cultures and professional contexts. The data revealed that trust in AI chatbots for OTC medication advice is conditional and context-dependent in both Ireland and India. In India, 52% of respondents reported chatbot for minor ailments such as headaches or fevers. However, this reliance was moderated by a tendency to cross-check advice with family, doctors, or pharmacists reflecting necessity-driven adoption in a healthcare system where access barriers are significant. In contrast, Irish participants demonstrated lower chatbot usage and a stronger preference for pharmacists citing easier access to regulated professionals and higher confidence in their credibility. Across both countries, satisfaction with chatbots stemmed more from speed and availability than from accuracy with trust being provisional rather than absolute.

Pharmacists consistently emerged as the benchmark of trustworthiness. Survey data revealed that 38% of Irish participants rated pharmacists at the highest trust level, compared with only 22% who rated chatbots moderately. Interviews supported this gap with Irish participants emphasising safety and empathy, while Indian participants valued convenience but still sought validation from pharmacists. Professionals in both settings highlighted the risk of incomplete or misleading chatbot advice particularly the omission of contraindications, reinforcing pharmacists' continued centrality in medication guidance.

Trust was also shaped by digital literacy, culture, and gender differences. In India, lower literacy and weak regulation created scepticism but necessity and affordability sustained chatbot use, sometimes despite language barriers. In Ireland, higher digital literacy did not guarantee adoption, as cultural norms prioritised professional oversight and regulatory assurance. Gender

differences were evident: men showed higher trust in chatbot advice, whereas women expressed more caution and concern about safety.

Finally, the study confirmed the persistence of the trust–accuracy paradox. Consumers in both countries continued to rely on chatbots despite recognising their limitations. Convenience, accessibility, and emotional reassurance outweighed clinical accuracy, especially in India where professional access was limited. Irish respondents, while sceptical of chatbots, still acknowledged their speed, although they relied on pharmacists for reassurance. These finding challenges traditional trust models by showing that adoption can persist even when accuracy is questioned extending theoretical understanding of how trust is negotiated in digital health.

Together these findings revealed that AI chatbots are viewed as quick and convenient but professional oversight remains critical for trust and safety.

5.3 Contributions and Limitations of the Research

This study makes an important contribution by bringing together consumer and professional perspectives across two countries revealing both opportunities and risks of using AI chatbots in healthcare. It highlights theoretical understanding of trust in AI healthcare tools by moving beyond Western-centric rationalist frameworks and reconceptualising trust as a paradoxical, culturally contingent, and dynamically co-constructed phenomenon. While prior models such as the Technology Acceptance Model (TAM), Trust in Automation, and the Health Belief Model (HBM) emphasise individual-level rational decision-making processes this research demonstrates that trust in AI chatbots for OTC medication advice emerges through a more complex interplay of emotional reassurance, systemic conditions, and cultural expectations. A central contribution lies in highlighting the trust–accuracy paradox, i.e consumers continue to trust and rely on AI chatbots despite documented inaccuracies and omissions. This paradox challenges existing models that assume accuracy and reliability are the primary drivers of trust. This theory is reconceptualised showing that necessity, accessibility, and emotional reassurance (such as speed, empathy, and non-judgemental tone) often outweigh clinical accuracy in shaping user reliance. The paradox positions trust as not purely performance-driven but also grounded in perceived emotional safety and practical necessity. The research also adds to our understanding of the cultural dimension of trust, such as people in India place importance on family and community validation of chatbot advice while in Ireland institutional trust in regulated professionals is more significant. These findings extend theoretical models by explicitly embedding cultural moderators such as healthcare pluralism, communal trust norms and regulatory strength into trust formation processes. The study demonstrates that cultural and systemic contexts are not peripheral influences but constitutive elements of trust itself. By

comparing Ireland and India, this research contributes to theory by illustrating that no single universal trust framework is adequate for AI in healthcare. Instead, trust must be theorised as pluralistic and context-specific, emerging from negotiated trade-offs between accuracy, convenience, cultural congruence and systemic safeguards. This comparative insight yields a new theoretical perspective: trust in AI healthcare tools is simultaneously individual and systemic, rational and emotional, universal in form yet culturally particular in substance.

However, some limitations must be acknowledged. The consumer survey had unequal sample sizes (104 participants from India and 49 from Ireland) which limits how far cross-country comparisons can be generalised. This imbalance affects the strength of comparative analysis, since the larger Indian dataset may disproportionately shape the findings. A more balanced sample might have produced different results, particularly in cross-country comparisons. This limitation also affects the generalisability of the study as the conclusions drawn may better reflect the Indian context than the Irish one.

While this study sought both consumer and professional input, most data came from consumers, with professional voices captured mainly through a small set of interviews and previous studies. This tilts several conclusions about safety assurances and appropriateness of advice towards consumer perceptions and cannot be generalized to the wider professional community. Given the exploratory nature of this pilot study, findings are not statistically generalisable to wider populations. However, the theoretical contributions developed particularly the conceptualisation of trust as paradoxical, dynamic, and culturally embedded providing a transferable lens for examining AI trust in diverse contexts. For example, the necessity-driven trust observed in India may also apply in other low-resource healthcare systems, while regulation-driven trust in Ireland may be echoed in other highly regulated EU contexts. Future research should test and refine these theoretical insights across broader samples, including rural populations, non-English speakers, and healthcare systems with differing levels of AI governance. In this way, while the empirical findings remain context-bound, the theoretical framework offers broader utility for understanding trust in AI healthcare globally.

Methodologically, the study relied on self-reported survey responses capturing perceptions rather than observed behaviours and may be subject to bias. Furthermore, the research was cross-sectional capturing views at a single point in time during a period of rapid technological development in AI, meaning attitudes may shift as technologies advance.

The key, as emphasised in both the methodology and discussion chapters is to acknowledge these limitations openly. Doing so makes clear how sample size and design constraints affect comparative analyses and generalisability. Importantly, this does not invalidate the research.

Instead, it defines the scope of the conclusions and strengthens the study's credibility by showing transparency about its boundaries.

5.4 Recommendations for Practice

The findings of this study highlight important considerations for policymakers, technology developers, and healthcare providers in ensuring the safe and effective use of AI chatbots for OTC medication advice. For policymakers, there is a need to establish clear regulatory categories for chatbots, supported by regular safety and accuracy audits and to enforce transparency standards through disclaimers and data use disclosures. They should also create robust redress mechanisms for consumers and support digital health literacy initiatives to reduce inequities, particularly in rural and low-literacy populations. For technology developers, inclusive design is critical; systems should incorporate multi-language and voice features, simplified interfaces, and embed safety prompts that automatically direct users to professional care when red-flag symptoms are detected. Developers should also align systems with GDPR, EU AI Act, or local regulations, and adopt a co-design approach with pharmacists, patients, and healthcare experts, supported by real-world testing with diverse user groups. For healthcare providers, the focus should be on developing clear protocols for addressing patient use of chatbot advice, educating patients on safe usage and limitations, and using chatbots as supplementary triage or education tools under professional supervision. Providers also have a role in giving feedback to developers and policymakers on cultural and clinical gaps observed in practice. Together, these measures emphasise the importance of robust regulation, inclusive design, and professional integration to ensure that AI chatbots for OTC medication advice are trustworthy, effective, and culturally responsive.These practices would allow chatbots to be integrated more safely into everyday self-care while reinforcing the role of professionals as trusted advisors.

5.5 Recommendations for Future Research

While this study offers valuable insights into consumer trust in AI chatbots for OTC medication advice, several avenues remain for future research. These directions should be developed systematically, theoretically grounded and directly connected to the gaps identified in this study. Future research should build on these findings in several ways. This study proposed a reconceptualisation of trust as dynamic, paradoxical and culturally embedded. Future studies should test and refine this framework across different healthcare domains beyond OTC advice examining how cultural values, communal trust norms, and regulatory structures shape trust formation. In particular, research should explore whether the trust–accuracy paradox holds consistently across contexts or whether different healthcare settings reveal alternative trust

mechanisms. Further, there is scope for methodological expansion. This study was limited by an online, English-speaking sample that skewed toward younger and more digitally literate participants. Future research should employ inclusive sampling strategies to reach low-literacy, rural and non-English-speaking populations ensuring more representative insights. Longitudinal studies would also allow researchers to examine how trust evolves over time with repeated chatbot use. Future studies should recruit a larger stratified professional sample to compare chatbot advice with professional standard using short surveys, interviews. Researchers should also explore regulatory frameworks in different contexts and how they affect adoption. Research should also explore chatbot design adaptations, such as local language interfaces or literacy-sensitive formats, and their impact on safety and trust.

There is also a need to investigate design adaptations, such as cultural tailoring, including local dialects, or linking chatbot advice with existing health records. Future studies could measure outcomes such as whether chatbot use changes medication adherence, reduces pharmacist workload, or introduces safety concerns. Qualitative approaches such as focus groups or patient diaries could also give deeper insights into the lived experience of using AI for health advice.

5.6 Conclusion and Reflections

This study set out to explore how consumers and professionals in India and Ireland perceive and trust AI chatbots for OTC medication advice. The findings show clear differences between the two contexts. In India, 52% of participants reported using chatbots for minor issues such as coughs, fever, or headaches, often because professional healthcare was less accessible. However, participants explained that they did not rely on AI advice alone and usually confirmed it with family members or a doctor. In contrast, most Irish participants preferred to seek help from pharmacists, as healthcare was easier to access and more trusted.

The survey results reflected these differences. While 22% of consumers gave a mid-level score of 3/5 for trust in chatbot accuracy 38% gave pharmacists the highest trust rating of 5/5 compared to chatbots thus showing a stronger preference for human advice. Professionals were aware that patients were using chatbots, but about half expressed doubts about their reliability, with many reporting examples of misleading or incomplete advice. One pharmacist warned that AI “doesn’t always highlight important safety points like contraindications,” showing a concern that echoed across interviews.

The clear conclusion is that chatbots are currently seen as useful for quick, general advice but are not safe replacements for pharmacists or other healthcare professionals. Their role is

supplementary, especially in India where they may help bridge gaps in access. Cultural values and professional trust still shape how people use them.

Reflecting on this research, the adoption of AI in healthcare depends on more than just technology. Trust is strongly influenced by context: in India, by family and community validation; and in Ireland, by the authority of regulated professionals. The study shows that AI chatbots will only gain acceptance if they are transparent about their limits, designed in ways that reflect cultural needs, and closely linked with professional oversight. By highlighting these differences and concerns, this dissertation adds detailed evidence to the wider debate on how AI can be responsibly integrated into healthcare.

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Appendices

Appendix A – ***Ethics Application & Declaration Form***

Ethics Application & Declaration Form

DISSERTATION TITLE: **Consumer Trust in AI Chatbots for OTC Medication Advice—A Pilot Study in Ireland and India**.

RESEARCHER'S NAME: **Abhirami Jose**

PROGRAMME OF STUDY: MSc in Pharmaceutical Business and Technology

SUPERVISOR'S NAME: Justin Keoghan

DECLARATION:

The information in this application form is accurate to the best of my knowledge. I undertake to abide by the principles outlined by Innopharma/Griffith College ethics policy in my research dissertation. I confirm that I have completed a full ethics assessment for my research dissertation as per the college guidelines. I will not begin my primary research until such approval from my supervisor and/or ethics Committee has been obtained.

I pledge to carry out my research according to the Innopharma/Griffith College academic integrity standards. Any results presented in my dissertation will be from my own, original

research, I will reference and/or acknowledge any material or sources used in its preparation and I will not plagiarise the work of anyone else.

For Student:

STUDENT SIGNATURE: 

DATE: 26 June 2025

The research contained within this research dissertation proposal has been approved.

For Supervisor:

	Yes	No
Ethics Committee Approval Required:	☐	☒

SUPERVISOR SIGNATURE: 

DATE:

For Ethics Committee (if required):

	Yes	No
Ethics Committee Approval Given:	☐	☐

ETHICS COMMITTEE MEMBER SIGNATURE:

DATE:

NOTE: Supervisors are responsible for ensuring their students fill in this form correctly and that all ethical areas have been considered.

SECTION 1: DESCRIPTION OF RESEARCH STUDY

1.1 Purpose and objectives of research

Purpose: This research aims to evaluate and compare consumer trust in AI chatbots for over-the-counter medication advice in Ireland and India. This study addresses the growing dependence on AI -driven health information platforms in the context of self-medication where consumers may act on AI -generated advice without professional oversight. The existing literature also highlights a gap regarding how cultural, regulatory and health literacy factors influence trust in AI chatbots for OTC medication guidance across different countries like India and Ireland. The prior research focused only on a single country context or prescription drug counselling leaving area of OTC medication advice where self-medication risks are high yet underexplored. By evaluating consumer trust and satisfaction with AI chatbots and comparison of chatbot recommendation with those of human pharmacists this research seeks to identify key factors of trust such as correctness of information, relevance across different cultural environments. This research aims to inform strategies for improving the safe and effective use of AI chatbots. The study further contributes to the development of guidelines for AI-driven health information in both developed and developing countries.

Objectives:

1. To evaluate consumer trust, usability and satisfaction in AI chatbot (ChatGPT, Gemni etc.) for OTC medication advice in Ireland and India.
2. To compare consumer trust in chatbot vs a human pharmacist recommendation for a selected OTC medication case.
3. To analyze cross-cultural variations in trust determinants (cultural and digital literacy factors) and identify key influences such as perceived accuracy, relevance, and reliability of chatbot's OTC medication advice in India and Ireland.

1.2 Research methodology:

This study adopts a realist abductive philosophical approach, aligning with both quantitative and qualitative research strategies. It utilizes an online survey on Google Forms to gather quantitative data and online interviews on Zoom calls to gather qualitative data. Target participants will be recruited through purposive and snowball sampling via professional networks, social media, and personal contacts in both India and Ireland. The participants include English-speaking adult residents aged 18 years above of Ireland and India users and non-users of AI chatbots for OTC medication advice, pharmacists in both countries practicing in community or retail settings and healthcare professionals (healthcare professionals in digital health, pharmacist assistants). Exclusion criteria include pharmacists or professionals not practicing in relevant countries, professionals with less than two years of experience in digital health platforms and pharmacists prescribing to fewer than 10 patients monthly.

A total sample size of 200 participants will be surveyed using two different questionnaires, focusing on different participants such as consumers and pharmacists/Healthcare professionals. This sample size will include 200 consumers both users and non-users of AI chatbots, 6-10 qualitative interviews per country which is considered appropriate for this pilot study, aiming to provide initial data and insights into identify key trends in trust, usability and satisfaction with AI chatbots for OTC medication advice (Refer Appendix 10.2). The quantitative data collected using the above methods will be analysed using descriptive and statistical tests such as the chi-square test and t-tests to identify patterns and relationships. The qualitative interview data will be analysed by manual thematic analysis by identifying recurring themes and influences on trust in AI. A convergent integration approach will be used where the qualitative and quantitative results are analysed separately then merged to provide a comprehensive interpretation. The findings will be summarized in a report with charts, tables, and narrative explanations using data visualization techniques.

SECTION 2: POSSIBLE ETHICAL ISSUES

Answer 'yes' or 'no' to the following questions.

SUBJECT MATTER

Does the research proposal involve:

Research into specific company activities that would be deemed sensitive or confidential

No

Research into politically and/or racially/ethnically and/or commercially sensitive areas

No

Sensitive, personal, professional or corporate issues

No

RESEARCH PROCEDURES

Does the research proposal involve:

Research that might damage the reputation of companies or participants

No

Research that may negatively affect the reputation of Griffith College/Innopharma

No

Use of personal records without consent No

Use of company data without consent

No

The offer of any inducements to participate

No

Audio or visual recording without consent

No

Using a language other than English

No

PARTICIPANTS

Does the research proposal involve:

People who are not competent and/or fluent in English

No

Does your research group include any of the following vulnerable groups

No

<u>If you have answered NO to ALL questions, please go straight to Section 4.</u>

<u>If you have answered YES to ANY question in SECTION 2, you must fill in SECTION 3.</u>

SECTION 3: STEPS TAKEN TO AVOID ETHICAL ISSUES

3.1. If your ethics relates to ***Subject Matter***, outline your action plan to work around any sensitive issues.

3.2. If your ethics relates to ***Research Procedures***, outline your action plan to deal with possible ethical issues in your research procedures.

3.3. If your ethics relates to ***Participants***, outline how you will protect vulnerable persons or those that do not have English as their first language.

SECTION 4: ABOUT YOUR PARTICIPANTS

4.1. Outline your participant profile and why you have chosen them for this study.

Consumer (General Public): As the primary users of AI chatbots for self-care and OTC medication guidance. Their experiences, trust levels and satisfaction with chatbot advice directly influence the adoption and effectiveness of these digital health tools. Understanding their perspectives is essential to assess usability, accuracy and the real-world impact of AI chatbots on medication decisions. Including both users and non-users allows for a comprehensive analysis of awareness, barriers and intentions regarding chatbot use.

Pharmacists: Pharmacists are key healthcare professionals who traditionally provide OTC medication advice. Their expertise, comparison of chatbot versus human advice and insights into patient safety are critical for evaluating the reliability and clinical appropriateness of AI-generated recommendations. Pharmacists' perspectives help identify gaps, risks and opportunities for integrating chatbots into pharmacy practice, ensuring that patient care standards are maintained.

Healthcare Professionals: These professionals interact with patients seeking OTC medication advice and may encounter AI chatbot users in their practice. Their views on the safety, accuracy and trustworthiness of chatbot advice, as well as their experiences with patient outcomes, provide valuable context for understanding the broader healthcare implications. Their input is vital for assessing the integration of AI chatbots into multidisciplinary care and for identifying professional concerns or support for digital health innovations

4.2 How do you plan to gain access to/contact/approach your participant(s).

I will be using my existing professional, academic and professional networks within pharmacy, healthcare, and digital health sectors in both Ireland and India. I plan to reach out to colleagues, former classmates and contacts via email, LinkedIn, and professional messaging apps. In my communications, I will explain the purpose and significance of my study, emphasizing how their participation can contribute valuable insights. I will also request their participation or inquire if they can refer me to other suitable candidates who might be interested in contributing to the study. Purposive sampling will be done to select participants for the study. To maximize reach, I will leverage social media channels such as Facebook, Twitter, and WhatsApp to share study invitations in relevant groups and communities focused on healthcare, pharmacy, and digital health.Specifically, I will utilize LinkedIn to connect with pharmacists and professionals. Furthermore, I will send personalized connection requests and messages to potential participants, explaining the research and inviting them to take part.

SECTION 5: INFORMATION, CONSENT AND CONFIDENTIALITY

5.1 **Participant Information Letter (PIL) for participants**

Please confirm below that your information letter covers:

Description of the research topic and method

N/A

Details of what participation will involve

N/A

Rights to anonymity N/A

Confidentiality N/A

Rights to withdraw from the research

N/A

The contact details of the researcher and supervisor (if necessary)

N/A

5.2 **Informed Consent Form (ICF) for participants**

Please indicate below if your research requires a signed consent form by selecting the relevant option only:

No: my research study involves an online survey only and/or does not require signed consent. Consent will be included in the online survey as follows:

1.Do you consent to participate in this study?

- Yes, I consent to participate.
- No, I do not consent to participate

SECTION 6: STORAGE OF DATA

6.1. How will you store the research data and for how long? How will you manage data protection issues?

All research data, including survey responses and analysis files will be stored securely in a password-protected electronic device. The primary storage location will be an electronic device (Laptop) with appropriate password protection. A backup copy will be stored in online cloud storage platforms (Griffith OneDrive) to prevent data loss. All the research data will be retained for a period of up to two years after the qualification is awarded. This retention period is per the data protection regulations to allow for potential further analysis or verification. After this period, the data will be securely and permanently deleted.

1. **Anonymization:** All identifiable information (e.g., names, contact details), if applicable, will be removed from the survey data and replaced with unique identifiers to ensure participant anonymity.

2. **Password Protection:** All electronic files containing research data will be password-protected using strong, unique passwords and will be accessed only by the researcher.
3. **Access to Data:** As part of the thesis submission, the raw, anonymized data will be submitted to the college submission platform (Moodle) for record-keeping and grading purposes.
4. **Data Encryption:** The storage devices (cloud storage or hard drive) will be password-encrypted to prevent unauthorized access to the data.

SECTION 7: NON-DISCLOSURE AGREEMENT & STUDENT CONSENT

7.1 **Non-Disclosure Agreement (NDA)**

Will the final dissertation contain any information pertaining to any source what would warrant the use of a Non-Disclosure Agreement (NDA) e.g. industry-based research?

No

7.2 **Student consent**

If a Non-Disclosure Agreement (NDA) is not required, does the Student consent to allow their completed dissertation to be held/published by Innopharma/Griffith College?

Yes

SECTION 8: RECORDING AND RETENTION OF DISSERTATION VIVA

8.1 **Viva Recording**

The Dissertation viva will be recorded. This recording may be used to facilitate assessment by Innopharma staff, a third reader if necessary and/or if requested by the external examiner for the Programme. The recording will be held in line with current GDPR guidelines and will not be made publicly available.

SECTION 9: DOCUMENT CHECKLIST

NOTE: Applicants must attach the following documents in electronic format to the appendix.

Which documents are added to the appendix? Please tick N/A if not applicable:

9.1 Participant Information Letter (PIL) for participant

N/A

9.2 Informed Consent Form (ICF) for participant

N/A

9.3 Questions/survey for interviewees/focus groups etc *(can be in draft form)*

Yes

9.4 Any other documents e.g. Non-Disclosure Agreement

N/A

I confirm that this application is complete and all required documents are included in the appendix.

For Student:

STUDENT SIGNATURE: 

DATE: 7th July 2025

SECTION 10: APPENDIX

10.1: Survey

Questionnaire Design

This study aims to evaluate the consumer trust and perceptions toward AI chatbot-based versus human-delivered over-the-counter (OTC) medication advice in India and Ireland. With the increasing use of AI chatbots such as ChatGPT and Gemini for health information, it is important to understand how consumers and healthcare professionals perceive the trustworthiness, usability, and accuracy of these digital tools, especially given the differences in healthcare systems, digital literacy, and regulatory environments between the two countries. As a participant, your contribution will involve completing a brief online survey about your experiences with AI chatbots for OTC medication advice, your trust in these tools compared to human pharmacists, and your views on the relevance, reliability, and safety of chatbot-provided information. The survey should take approximately **5-10 minutes** to complete, and your responses will be kept strictly confidential. Your participation will provide valuable insights into how trust in AI chatbots is shaped by cultural, regulatory, and literacy factors in both India and Ireland.

Note: Data will be retained for 2 years after the completion of the study for the purpose of analysis, reporting, and academic verification. After this period, all data will be permanently deleted from storage systems. Your responses will be kept strictly confidential and anonymized. No personal identifying information will be collected. The data collected will be solely used for academic research purposes.

If you have any questions about the study, you may contact the researcher at abhiramijose@student.griffith.ie .

By selecting yes 'I consent' you confirm that

- You are aged 18 or older
- You have read and understood the information above
- You voluntarily agree to participate in the study
- You understand that your responses will be anonymised and kept confidential

Do you consent to participate in the study?

- **Yes, I consent to participate.**
- **No, I do not consent to participate in the study.**

Survey 1: For Consumers Who Have Used /or not used AI Chatbots for OTC Medication Advice

Purpose: To assess user trust, usability, satisfaction, perceived accuracy, relevance, and reliability of AI chatbots for OTC medication advice.

Section A: Demographics and AI Chatbot Usage

1. **Country of Residence:**
    - Ireland
    - India
2. **Age Group:**
    - 18-24
    - 25-34
    - 35-44

- 45-54
- 55-64
- 65+

3. **Gender:**
    - Male
    - Female
    - Non-binary
    - Prefer not to say
4. **Highest Level of Education:**
    - Primary School
    - Secondary School
    - Vocational/Technical Qualification
    - Undergraduate Degree
    - Postgraduate Degree
    - Doctorate
5. **How would you rate your Digital Literacy?**
    - Beginner (basic smartphone/computer use)
    - Intermediate (comfortable with apps, online services)
    - Advanced (proficient with new technologies, troubleshooting)
    - Expert (highly skilled, can help others with technology)
6. **How often do you use AI chatbots for any purpose (not just health)?**
    - Daily
    - Weekly

- Monthly
- A few times a year
- Rarely

7. **Have you used an AI chatbot for OTC advice?**
   - Yes
   - No

(If yes continue Section B if no go to Section G)

Section B:AI chatbot usage for OTC medication advice

8. **What influenced your decision to first try AI chatbots for OTC advice?**
   - Convenience/accessibility
   - Cost considerations
   - Privacy/anonymity
   - Recommendation from others
   - Curiosity about technology
   - Other: _____

9. **Which AI chatbot(s) have you used for OTC medication advice? (Select all that apply)**
   - ChatGPT
   - Google Gemini
   - Microsoft Copilot
   - Perplexity AI
   - Other (Please specify: _____)

10. **How often have you used AI chatbots specifically for OTC medication advice in the past 12 months?**

    - o Once
    - o 2-5 times
    - o 6-10 times
    - o More than 10 times

11. **What types of OTC medication advice have you sought from AI chatbots? (Select all that apply)**

    a. Information about specific OTC drugs (e.g., paracetamol, ibuprofen)

    b. Dosage recommendations

    c. Potential side effects

    d. Drug interactions

    e. Advice for minor ailments (e.g., common cold, headache, allergies)

    f. Recommendations for which OTC drug to use for a specific symptom

    g. Alternative remedies

    h. Other (Please specify: _____)

12. **How would you rate your ability to evaluate the reliability of health information from digital sources(including AI chatbots) ?**

    - o Excellent
    - o Good
    - o Fair
    - o Poor
    - o Very Poor

13. **If you verify chatbot advice, which sources do you use? (Select all that apply)**

a. Internet Search

b. Family or Friends

c. Pharmacists

d. Doctor

e. Other Specify

Section C: Trust and Satisfaction with AI Chatbots for OTC Medication Advice

(Please indicate your agreement with the following statements on a scale of 1 to 5, where 1 = Strongly Disagree, 3 = Neutral, 5 = Strongly Agree)

Statement	**1 (Strongly Disagree)**	**2**	**3 (Neutral)**	**4**	**5 (Strongly Agree)**
Trust in Information					
AI chatbots are knowledgeable about OTC medications					
I trust the accuracy of the OTC medication advice provided by AI chatbots.					
I would follow AI chatbot advice without consulting a human professional					
AI chatbots provide advice that prioritizes my health and safety					
I feel confident in following the advice given by AI chatbots for					

OTC medications.					
I believe AI chatbots are designed to provide helpful advice, not harm, in my health situation.					
AI chatbots are a convenient source for OTC medication advice.					
AI chatbots provide culturally appropriate health advice for my community					
The AI chatbots are honest about their limitations.					
The chatbots disclose their uncertainties in their answer.					
My trust in AI chatbots depends on the severity of my health condition					
I trust AI chatbots for simple symptoms but not for complex issues.					
Satisfaction in AI chatbots					
AI chatbots save me time when I need quick information about OTC medications.					
AI chatbots provide comprehensive					

information about OTC medications.					
The advice from AI chatbots is easy to understand.					
I use AI chatbots for OTC advice because it's difficult to access a human healthcare professional quickly?					
I am satisfied with the overall experience of using AI chatbots for OTC medication advice					
Comparison with Human Sources	**Much less**	**less**	**same**	**More**	**Much more**
Would you trust advice from a human pharmacist more than advice from an AI chatbot for OTC medication?					
Would you still prefer to consult a human healthcare professional for serious health concerns.					

Section D: Open-ended Questions (Qualitative Insights)

1. What are the main reasons you choose to use an AI chatbot for OTC medication advice instead of or in addition to consulting a healthcare professional?

2. Can you describe a specific instance where an AI chatbot provided helpful or particularly useful OTC medication advice?

3. Can you describe a specific instance where an AI chatbot provided unhelpful, incorrect, or concerning OTC medication advice? How did you respond?

4. What do you believe are the greatest benefits of using AI chatbots for OTC medication advice?

5. What are your biggest concerns or challenges when using AI chatbots for OTC medication advice?

6. What improvements would you suggest to make AI chatbots more trustworthy or effective for OTC medication advice?

Section E: Healthcare Access and Cultural Factors

14. **How accessible are pharmacists for OTC advice in your area?**

    - Easily
    - Sometimes
    - Rarely
    - Not at all

15. **Do your country's healthcare system influence your willingness to use AI chatbots?**

    - Yes
    - No

Explain (optional)

16. **Do traditional medicine beliefs influence your use of AI chatbots?**

    - Yes
    - No

Explain (optional)

Section F: Regulations and Ethics

17. **How familiar are you with AI regulations in health in your country?**

- Very familiar
- Somewhat familiar
- Not at all

18. **Does awareness of these regulations impact your trust in AI chatbots?**
    - Yes
    - No
19. **Are you concerned about how your health data is handled by chatbots?**
    - Yes
    - No
    - Not sure
20. **How important is chatbot transparency about sources/limitations?**
    - Very important
    - Somewhat
    - Not at all
21. **How transparent and explainable do you find AI chatbots in providing health advice?**
    - Very transparent and explainable
    - Not at all
    - Not sure

Section G: For non-users: Reasons for Non-Use and Future Intent (FOR USERS SKIP THIS)

1. **What are the primary reasons you have NOT used AI chatbots for OTC medication advice? (Select all that apply)**
    a. Lack of trust in the information

b. Concern about data privacy

c. Prefer to consult a human healthcare professional

d. Don't know how to use them for this purpose

e. Not aware they could provide this kind of advice

f. Don't feel the need; I have other reliable sources (e.g., internet search, family)

g. Concern about legal/regulatory oversight

h. Lack of access to technology/internet

i. Other (Please specify: _____)

2. **What, if anything, would make you consider using an AI chatbot for OTC medication advice in the future? (Open ended question)**

INTERVIEW QUESTIONS

In this interview, I'll ask you about your experiences, opinions, and concerns regarding the use of AI chatbots for medication advice. There are no right or wrong answers—we are interested in your honest views and personal experiences. Your responses will help us understand what influences trust in AI chatbots and how these tools can be improved for safer and more effective use.

Your participation is voluntary, and your responses will be kept confidential. You can skip any question or stop the interview at any time.

This interview will be audio recorded to ensure accurate capture of your responses. The recording will be retained for 2 years after the completion of the study for the purpose of analysis, reporting, and academic verification. After this period, all data will be permanently deleted from storage systems. Your responses will be kept strictly confidential and anonymized. No personal identifying information will be collected. The data collected will be solely used for academic research purposes. You may choose to skip any question or stop the recording at any time.

Do you consent to this interview being audio recorded?

- Yes, I consent to audio recording.

1. Have you ever used any AI chatbot to get advice about OTC medications?
    a. If yes: Can you describe your experience with using AI chatbots for OTC advice?
    b. If no: What are your reasons for not using them?

2. When you use an AI chatbot for medication advice, what makes you feel confident in the information it provides?
3. Are there any things that make you feel uncertain or cautious?
4. How do you typically verify or cross-check information from AI chatbots?
5. What role do family/friends play in your healthcare decisions compared to AI chatbots?
6. If you've also consulted a pharmacist for OTC advice, how would you compare that experience to using a chatbot? (In what ways did you find one more reliable or useful than the other?)
7. Given a choice, would you prefer to get advice from a chatbot or a human pharmacist? Why?
8. Do you think people in your country (Ireland/India) generally trust AI chatbots for health advice? Why or why not?
9. What role does your country's healthcare system play in this decision?
10. Are you aware of any rules or guidelines about using AI for health advice in your country? Do you think regulations are needed for chatbots? Why or why not?
11. Do you feel that cultural attitudes or local healthcare systems affect how much people trust chatbots? Can you give an example?
12. Have you ever found it difficult to understand or use information from a chatbot?

13. Have you ever received incorrect or concerning advice from a chatbot? What did you do?

14. How important is it for AI chatbots to clearly state their limitations or not be overconfident?

15. What skills or knowledge do you think are needed to use AI chatbots for medication advice safely?

16. Do you have any concerns about sharing personal health information with AI chatbots? Why or why not?(Are there any ethical or privacy issues that you think are important when using chatbots for health advice?)

17. If AI chatbots were more transparent, safe, or culturally adapted, would you use them more often?

18. What changes or features would make you more likely to trust and use AI chatbots for OTC medication advice? (What advice would you give to healthcare providers or policymakers about using AI chatbots in healthcare?)

Closing:

Thank you for your time and insights. Is there anything else you'd like to add about your experiences or views on this topic?

10.2 Sample Size Calculations

The sample size for this study is calculated using Survey Monkey online calculator.

Survey Monkey Formula

$$n = \frac{Z^2 \times P \times (1-P)}{E^2}$$

n = Sample Size

Z = Confidence Level

P = Estimated population Proportion

E = Margin of Error

Consumers: Participants in India and Ireland.

The population proportion for consumer group was estimated at **10%**, considering that the number of users considered using AI chatbots for OTC medication advice is projected to reach approximately **142 million in India and 5.1 million** by 2025(Statista, 2024.). The estimated number of chatbot users for OTC medication advice in India was determined by considering recent digital health adoption trends and the growing prevalence of AI-powered health chatbots among Indian consumers(Bagga *et al.*, 2024). Sample size calculation are based on prevalence, desired margin of error and confidence level not the total population (Pourhoseingholi *et al.*, 2013).If with a 95% confidence interval and a 10% margin of error, a sample of 100 is statistically justified for estimating proportions in pilot studies regardless of whether the country has 5 million or 1.4 billion people(Conroy, 2025). Thus the sample size of 100 can yield meangiful comparable results as the sampling is random and unbiased.

Z = Confidence Level = 95%=1.96

P = Population proportion =10%=0.10

E = margin of error = 6%=0.06 (suitable for pilot studies)

n= (1.96^2 X 0.10 (1-0.10)) / 0.06^2

= 3.8416 x 0.10 x0.90 /0.0036 = 0.345744/0.0036

= 96.04

N = 100

Appendix B – Survey Form

10.1: Survey

Questionnaire Design

This study aims to evaluate the consumer trust and perceptions toward AI chatbot-based versus human-delivered over-the-counter (OTC) medication advice in India and Ireland. With the increasing use of AI chatbots such as ChatGPT and Gemini for health information, it is important to understand how consumers and healthcare professionals perceive the trustworthiness, usability, and accuracy of these digital tools, especially given the differences in healthcare systems, digital literacy, and regulatory environments between the two countries. As a participant, your contribution will involve completing a brief online survey about your experiences with AI chatbots for OTC medication advice, your trust in these tools compared to human pharmacists, and your views on the relevance, reliability, and safety of chatbot-provided information. The survey should take approximately **5-10 minutes** to complete, and your responses will be kept strictly confidential. Your participation will provide valuable insights into how trust in AI chatbots is shaped by cultural, regulatory, and literacy factors in both India and Ireland.

Note: Data will be retained for 2 years after the completion of the study for the purpose of analysis, reporting, and academic verification. After this period, all data will be permanently deleted from storage systems. Your responses will be kept strictly confidential and anonymized. No personal identifying information will be collected. The data collected will be solely used for academic research purposes.

If you have any questions about the study, you may contact the researcher at abhiramijose@student.griffith.ie .

By selecting yes 'I consent' you confirm that

- You are aged 18 or older
- You have read and understood the information above
- You voluntarily agree to participate in the study

- You understand that your responses will be anonymised and kept confidential

Do you consent to participate in the study?

- **Yes, I consent to participate.**
- **No, I do not consent to participate in the study.**

Survey 1: For Consumers Who Have Used /or not used AI Chatbots for OTC Medication Advice

Purpose: To assess user trust, usability, satisfaction, perceived accuracy, relevance, and reliability of AI chatbots for OTC medication advice.

Section A: Demographics and AI Chatbot Usage

22. **Country of Residence:**
    - Ireland
    - India
23. **Age Group:**
    - 18-24
    - 25-34
    - 35-44
    - 45-54
    - 55-64
    - 65+
24. **Gender:**
    - Male

- Female
- Non-binary
- Prefer not to say

25. Highest Level of Education:

- Primary School
- Secondary School
- Vocational/Technical Qualification
- Undergraduate Degree
- Postgraduate Degree
- Doctorate

26. How would you rate your Digital Literacy?

- Beginner (basic smartphone/computer use)
- Intermediate (comfortable with apps, online services)
- Advanced (proficient with new technologies, troubleshooting)
- Expert (highly skilled, can help others with technology)

27. How often do you use AI chatbots for any purpose (not just health)?

- Daily
- Weekly
- Monthly
- A few times a year
- Rarely

28. Have you used an AI chatbot for OTC advice?

- Yes

- No

(If yes continue Section B if no go to Section G)

Section B:AI chatbot usage for OTC medication advice

29. **What influenced your decision to first try AI chatbots for OTC advice?**
    - Convenience/accessibility
    - Cost considerations
    - Privacy/anonymity
    - Recommendation from others
    - Curiosity about technology
    - Other: _____

30. **Which AI chatbot(s) have you used for OTC medication advice? (Select all that apply)**
    - ChatGPT
    - Google Gemini
    - Microsoft Copilot
    - Perplexity AI
    - Other (Please specify: _____)

31. **How often have you used AI chatbots specifically for OTC medication advice in the past 12 months?**
    - Once
    - 2-5 times
    - 6-10 times

- More than 10 times

32. What types of OTC medication advice have you sought from AI chatbots? (Select all that apply)

i. Information about specific OTC drugs (e.g., paracetamol, ibuprofen)

j. Dosage recommendations

k. Potential side effects

l. Drug interactions

m. Advice for minor ailments (e.g., common cold, headache, allergies)

n. Recommendations for which OTC drug to use for a specific symptom

o. Alternative remedies

p. Other (Please specify: _____)

33. How would you rate your ability to evaluate the reliability of health information from digital sources(including AI chatbots) ?

- Excellent
- Good
- Fair
- Poor
- Very Poor

34. If you verify chatbot advice, which sources do you use? (Select all that apply)

f. Internet Search

g. Family or Friends

h. Pharmacists

i. Doctor

j. Other Specify

Section C: Trust and Satisfaction with AI Chatbots for OTC Medication Advice

(Please indicate your agreement with the following statements on a scale of 1 to 5, where 1 = Strongly Disagree, 3 = Neutral, 5 = Strongly Agree)

Statement	**1 (Strongly Disagree)**	**2**	**3 (Neutral)**	**4**	**5 (Strongly Agree)**
Trust in Information					
AI chatbots are knowledgeable about OTC medications					
I trust the accuracy of the OTC medication advice provided by AI chatbots.					
I would follow AI chatbot advice without consulting a human professional					
AI chatbots provide advice that prioritizes my health and safety					
I feel confident in following the advice given by AI chatbots for OTC medications.					
I believe AI chatbots are designed to provide helpful advice, not harm, in my health situation.					
AI chatbots are a convenient source					

for OTC medication advice.					
AI chatbots provide culturally appropriate health advice for my community					
The AI chatbots are honest about their limitations.					
The chatbots disclose their uncertainties in their answer.					
My trust in AI chatbots depends on the severity of my health condition					
I trust AI chatbots for simple symptoms but not for complex issues.					
Satisfaction in AI chatbots					
AI chatbots save me time when I need quick information about OTC medications.					
AI chatbots provide comprehensive information about OTC medications.					
The advice from AI chatbots is easy to understand.					
I use AI chatbots for OTC advice					

because it's difficult to access a human healthcare professional quickly?					
I am satisfied with the overall experience of using AI chatbots for OTC medication advice					
Comparison with Human Sources	**Much less**	**less**	**same**	**More**	**Much more**
Would you trust advice from a human pharmacist more than advice from an AI chatbot for OTC medication?					
Would you still prefer to consult a human healthcare professional for serious health concerns.					

Section D: Open-ended Questions (Qualitative Insights)

7. What are the main reasons you choose to use an AI chatbot for OTC medication advice instead of or in addition to consulting a healthcare professional?

8. Can you describe a specific instance where an AI chatbot provided helpful or particularly useful OTC medication advice?

9. Can you describe a specific instance where an AI chatbot provided unhelpful, incorrect, or concerning OTC medication advice? How did you respond?

10. What do you believe are the greatest benefits of using AI chatbots for OTC medication advice?

11. What are your biggest concerns or challenges when using AI chatbots for OTC medication advice?

12. What improvements would you suggest to make AI chatbots more trustworthy or effective for OTC medication advice?

Section E: Healthcare Access and Cultural Factors

35. **How accessible are pharmacists for OTC advice in your area?**
    - Easily
    - Sometimes
    - Rarely
    - Not at all
36. **Do your country's healthcare system influence your willingness to use AI chatbots?**
    - Yes
    - No

Explain (optional)

37. **Do traditional medicine beliefs influence your use of AI chatbots?**
    - Yes
    - No

Explain (optional)

Section F: Regulations and Ethics

38. **How familiar are you with AI regulations in health in your country?**
    - Very familiar
    - Somewhat familiar
    - Not at all
39. **Does awareness of these regulations impact your trust in AI chatbots?**
    - Yes

- No

40. Are you concerned about how your health data is handled by chatbots?

- Yes
- No
- Not sure

41. How important is chatbot transparency about sources/limitations?

- Very important
- Somewhat
- Not at all

42. How transparent and explainable do you find AI chatbots in providing health advice?

- Very transparent and explainable
- Not at all
- Not sure

Section G: For non-users: Reasons for Non-Use and Future Intent (FOR USERS SKIP THIS)

3. **What are the primary reasons you have NOT used AI chatbots for OTC medication advice? (Select all that apply)**

j. Lack of trust in the information

k. Concern about data privacy

l. Prefer to consult a human healthcare professional

m. Don't know how to use them for this purpose

n. Not aware they could provide this kind of advice

o. Don't feel the need; I have other reliable sources (e.g., internet search, family)

p. Concern about legal/regulatory oversight

q. Lack of access to technology/internet

r. Other (Please specify: _____)

4. **What, if anything, would make you consider using an AI chatbot for OTC medication advice in the future? (Open ended question)**

*Appendix **C** – Informed Consent Form*

Consent to take part in research

GRIFFITH COLLEGE

Title

"Consumer Trust in AI Chatbots for OTC Medication Advice—A Pilot Study in Ireland and India"

Please read the following statements carefully. If you agree to participate, please sign at the bottom. The researcher will keep one signed copy, and you will receive a copy for your own records.
By signing this form:

- I confirm that I have read and understood the information about this study and have had the opportunity to ask questions.
- I voluntarily agree to take part in this research study.
- I understand that I can choose not to answer any question or withdraw from the interview at any time, without any consequences.
- I understand that I can request for my interview data to be withdrawn up to two weeks after the interview, after which it will be deleted.
- I understand that I will take part in a one-to-one interview lasting around 10–15 minutes, conducted via Zoom, where I will be asked about my experiences and views related to using AI chatbots for over-the-counter (OTC) medication advice in healthcare.
- I understand that the interview will be audio-recorded (with my permission), transcribed, and anonymized.
- I understand that my participation will not result in any direct personal benefit.
- I understand that all information I provide will be treated as confidential.
- I understand that my identity will remain anonymous in any report or publication based on this research, with names and other identifying details changed or removed.
- I agree to my interview being audio-recorded using the Zoom platform.
- I understand that anonymized quotes from my interview may be included in the final dissertation, conference presentations, publications, or academic journals.

- I understand that if I reveal that I or someone else is at risk of harm, the researcher may have to inform relevant authorities. They will try to discuss this with me first, where possible.
- I understand that signed consent forms and original audio recordings will be securely stored until the exam board has confirmed the results of the dissertation.
- I understand that anonymized transcripts of my interview will be kept securely for up to two years after the exam board decision.
- I understand that I have the right to access the data I have provided at any time during the storage period, under freedom of information regulations.
- I understand that I can contact the researcher or academic supervisor for more information or clarification at any time.

Researcher Details

Name: Abhirami Jose

Degree Programme: MSc in Pharmaceutical Business and Technology.

College Details: Griffith College, Dublin, Ireland.

Contact number: +353 894041855

Contact mail: abhiramijose.@student.griffith.ie

Signature of participant

Signature of research participant

---------- ----------

Date

Signature of researcher

I believe the participant is giving informed consent to participate in this study

---------- ----------

Date

Signature of researcher

Appendix D – Interview Questions

Interview questions

1. Have you ever used any AI chatbot to get advice about OTC medications?
    a. If yes: Can you describe your experience with using AI chatbots for OTC advice?
    b. If no: What are your reasons for not using them?
2. When you use an AI chatbot for medication advice, what makes you feel confident in the information it provides?
3. Are there any things that make you feel uncertain or cautious?
4. How do you typically verify or cross-check information from AI chatbots?
5. What role do family/friends play in your healthcare decisions compared to AI chatbots?
6. If you've also consulted a pharmacist for OTC advice, how would you compare that experience to using a chatbot? (In what ways did you find one more reliable or useful than the other?)
7. Given a choice, would you prefer to get advice from a chatbot or a human pharmacist? Why?
8. Do you think people in your country (Ireland/India) generally trust AI chatbots for health advice? Why or why not?
9. What role does your country's healthcare system play in this decision?
10. Are you aware of any rules or guidelines about using AI for health advice in your country? Do you think regulations are needed for chatbots? Why or why not?
11. Do you feel that cultural attitudes or local healthcare systems affect how much people trust chatbots? Can you give an example?
12. Have you ever found it difficult to understand or use information from a chatbot?

13. Have you ever received incorrect or concerning advice from a chatbot? What did you do?

14. How important is it for AI chatbots to clearly state their limitations or not be overconfident?

15. What skills or knowledge do you think are needed to use AI chatbots for medication advice safely?

16. Do you have any concerns about sharing personal health information with AI chatbots? Why or why not?(Are there any ethical or privacy issues that you think are important when using chatbots for health advice?)

17. If AI chatbots were more transparent, safe, or culturally adapted, would you use them more often?

18. What changes or features would make you more likely to trust and use AI chatbots for OTC medication advice? (What advice would you give to healthcare providers or policymakers about using AI chatbots in healthcare?)

Appendix E– Participant's Information Leaflet

Participant Information Leaflet (PIL)

Title of Study:
Consumer Trust in AI Chatbots for OTC Medication Advice — A Pilot Study in Ireland and India

WHO I AM AND WHAT THIS STUDY IS ABOUT

My name is Abhirami Jose, and I am completing this study as part of my MSc in Pharmaceutical Business and Technology at Griffith College Dublin. This research forms my Master's dissertation under the supervision of Mr. Justin Keogan.

This study aims to investigate how consumers in Ireland and India perceive and trust AI chatbots when seeking advice on over-the-counter (OTC) medications. The study explores how factors such as culture, regulation, digital literacy, and healthcare access influence consumer trust and willingness to follow chatbot advice compared with advice from pharmacists.

WHAT WOULD TAKING PART INVOLVE?

If you agree to take part, you will be asked to:

- Complete an online survey (approx. 10–15 minutes).
- Optionally, some participants may be invited to take part in a one-on-one interview (approx. 20–30 minutes via Zoom).

The survey will ask about your experiences, perceptions, and opinions regarding the use of AI chatbots for OTC medication advice. If interviewed, the conversation will be audio recorded (with your consent) for accurate transcription and analysis.

Your participation is entirely voluntary, and you may refuse to answer any question.

WHY HAVE YOU BEEN INVITED TO TAKE PART?

You have been invited because you are an adult (18 years or older) living in Ireland or India with experience (or potential experience) of using AI chatbots for healthcare or OTC advice. You may also be included if you have not used chatbots but have views on why you do or do not trust them.

DO YOU HAVE TO TAKE PART?

No — taking part is completely voluntary. You are free to decline participation, skip any question, or withdraw from the study at any time without consequence.

- Participation is voluntary.
- Deciding not to consent will have no adverse consequences.
- You may withdraw your consent at any stage without giving a reason.

If you choose to withdraw, please contact Abhirami Jose (email: [insert email], phone: [insert number]).

WHAT ARE THE POSSIBLE RISKS AND BENEFITS OF TAKING PART?

Possible risks:

- There are minimal risks associated with participation. Some questions may prompt you to reflect on your healthcare choices, which could cause minor discomfort.
- There are no physical risks involved.
- Confidentiality risks will be managed carefully (see below).

Possible benefits:

- You may gain personal insight into your own use of AI chatbots.
- Your participation will contribute to better understanding of how people perceive and trust digital health tools, which could help improve safe and effective design of future healthcare chatbots.

WILL TAKING PART BE CONFIDENTIAL?

Yes. All information you provide will be kept confidential and anonymised.

- Your name and personal details will not appear in any report or publication.
- Interview recordings and signed consent forms will be kept securely and accessed only by the researcher.

HOW WILL INFORMATION YOU PROVIDE BE STORED AND PROTECTED?

- Survey responses will be stored securely on Google Forms with encrypted access.
- Audio recordings (for interviews) and consent forms will be stored on a password-protected device, accessible only to the researcher.
- Signed consent forms and original audio recordings will be retained until after the MSc degree is awarded.
- An anonymised transcript of interviews will be retained for two years after degree completion, after which it will be securely deleted.
- Under Freedom of Information legislation, you may request access to your own data at any time.

WHAT WILL HAPPEN TO THE RESULTS OF THE STUDY?

The results will be used solely for my MSc dissertation at Griffith College Dublin. The dissertation will be made available in the Griffith College library and may be deposited in an online repository. The findings may also be presented in academic publications or conferences.

WHO SHOULD YOU CONTACT FOR FURTHER INFORMATION?

If you have any questions about the study, please contact:

Researcher:
Abhirami Jose
MSc Pharmaceutical Business and Technology
Griffith College Dublin
Email: abhiramijose@student.griffith.ie

Supervisor:
Mr. Justin Keogan

Griffith College Dublin
Email: justin.keogan@griffith.ie

Interview Transcripts

Participant1_Consumer1

Interviewer

Hello. Thank you for taking the time to join me today. My name is Abhirami, and I'm conducting this interview as a part of my NOC research project. My study is exploring how people in Ireland and India perceive and trust AI chatbots when it comes to getting advice about over the counter medication. So by AI chatbot, I mean chat, GPT, Gemini and similar platforms that can give health related advice online. The aim of this interview is to understand your personal views and experiences. I am especially interested in factors like trust, ease of use, cultural influences, and how AI compares to human pharmacists for OTC medication guidance. Before we get started, I would like to go over a few important points about your participation. So this interview should take about 10 to 15 minutes. Everything you share is confidential. You can skip any question you don't want to answer, and you can stop the interview at any time you without giving a reason, I would like to audio record our conversation purely so that I can accurately transcribe your answers for later analysis. The recording will be stored securely and will be only accessed by VMI researcher. And do we have you?

Interviewer

Do I have your consent to participate in this interview?

Speaker 2

Yeah,

Interviewer

okay. Do I have your permission to audio record our conversation?

Speaker 2

Yes, of course.

Interviewer

Great. Thank you. I will start with the questions. So have first questions. Have you ever used any AI chat board to get advice about OTC medication? If yes, can you describe your experience? And if no, what were your reasons for not using them?

Speaker 2

Yes, I have used the chatbots like chatgpt to check whether over the counter medicine would be suitable for me. It's especially handy when it's a late at night, or if I can't go to pharmacy right away, it feels like a quick first step before deciding whether I need to follow up with a professional.

Interviewer

Okay, so when you use an AI chat board for medication advice, what makes you feel confident in the information it provides?

Speaker 2

I feel much more confident if the advice I get is based with information I have already read about or something I have been told before by a pharmacist. So that kind of constancy made me trust to be chatbot model.

Interviewer

Okay, so are there any things that make you feel uncertain or cautious while using chatbot,

Speaker 2

I feel hesitation when the Chatbot doesn't mention side effects. That's a really important part of deciding whether a medicine is safe or for me, so if we skip that, I feel less secure about relying on the answers.

Interviewer

Okay, so how do you typically verify information from an chatbot

Speaker 2

So I'm not fully sure about that. What I would do is my next step is usually to just ring the pharmacist a call. Feels more reassuring and reliable for me.

Interviewer

Okay, so next question, what role do family or friends play in your healthcare decision compared to an AI Chatbot.

Speaker 2

My family sometimes give me opinions, but in the end, I mostly make my own health decisions. I like to be in control of what I choose for myself.

Interviewer

Okay. Next question, like, if you have also consulted a pharmacist for OTC, how would you compare that with your that way of your chatbot answer

Speaker 2

pharmacist and reassures me more, because I can actually ask all of questions with AI, it feels harder to dig deeper into details of clarify doubts.

Interviewer

Okay, so given a choice, would you prefer a chat board or human pharmacist. If

Speaker 2

If in s a simple situation, like a mild headache or something basic , I think the chatbot is fine because but it seems like tricky or more serious, I would definitely prefer speaking to our pharmacist.

Interviewer

Okay, so next question is, do you think people in your country, that is in Ireland, generally trust AI chat boards for health advice?

Speaker 2

Oh, in Ireland, I think people still lean more towards advice from professionals, rather than replaying fully on chatbots. We Trust in pharmacists and doctors traditionally.

Interviewer

Okay, so what role does your country's healthcare system play in this decision?

Speaker 2

Oh, since the healthcare system here in Ireland make it fairly and easy to access a pharmacist, there isn't much pressure to depend only on a chatbot, because knowing I can always reach out to a professional make its me feel more secure.

Interviewer

Okay, so do you feel that cultural attitudes on a local healthcare system affect how much people trust the Chatbot?

Speaker 2

I'm not aware of any specific rules or regulations about chatbots in healthcare, but I think. Think a few clear rules would be a good idea. It would be make them feel safer to use.

Interviewer

Okay? And do you feel that the cultural attitudes help? How much people like affect how much people address the chatbots?

Speaker 2

Yes, people here definitely accept a more personalized style of care. So when a chatbot feels too generic, it doesn't fully meet exceptions

Interviewer

and okay. And the next question is, have you ever found it difficult to understand or use information from a chatbot?

Speaker 2

Ah, sometimes the chatbots language get a little too medical to technical, but most of the time I can understand it well enough, so it's not a major problem for me.

Interviewer Okay. So next question is, have you ever received a incorrect or

Speaker1

incorrect information from a chatbot?

Speaker 2

Yeah, there was one time I got a strange or unusual suggestion for the chat board. I didn't take it seriously and it just ignore it, but it remind me to be as cautious.

Interviewer

Okay, so the next question is, how important is it for an AI chat to clearly state its limitations?

Speaker 2

I think chatbot should we make it clearer when it's not fully certain about something? And that the way I don't know when to double check with the pharmacist.

Interviewer

Okay? And next question, what skills or knowledge do you think are needed to use AI chat for her medication advice?

Speaker 2

Yeah, I have also noticed that that knowing how to ask the right question make a big differences, or if I phrase it clearly, the chat would usually give a better responses.

Interviewer

Okay. And

Interviewer

next questions, do you have any concern about sharing your personal health information with AI chatbots?

Speaker 2

Ah, yeah, about putting some details at too personal like sensitive health information, I don't feel fully comfortable sharing with that AI,

Interviewer

okay. And next question, if AI chatbots were more transparent, safe or culturally adapted? Would you use them more often?

Speaker 2

I would probably use the chat board more often if the safety checks were clearer, for example, if the highlighter or gave some strong warnings we are needed.

Interviewer

Okay. So what changes or features would make you more likely to trust and use AI chat before OTC medication advice

Speaker 2

Links to pharmacist and clear risk flags built in a chatbot would definitely improve my trust. I would feel like a safer and more reliable system,

Interviewer

okay, and that thank you so much. That brings us to the end of my questions, and thank you so much for sharing your time and experiences with me today. Your input is very valuable for understanding how trust in AI works across the different countries and cultures. Once I have completed my analysis, I'll be happy to send you a short summary of the findings, if you like. And thanks again, and I really appreciate your participation. Thank you.

Speaker 2

Yeah. Okay. Thank you.

Participant 2 Consumer 2

Interviewer

Hello. Thank you for participating, for taking the time to join me today. My name is Abhirami Jose, and I'm conducting this interview as a part of my research dissertation for my MSc pharmaceutical business and technology. So my study is exploring how people in Ireland and India perceive and trust AI chatbots when it comes to coming to getting advice from further over the counter medicines. So by AI chatbot, I mean like chatgpt, Germany, Microsoft, copilot, etc. So the other and other platforms that can give health related advice online. So the aim of this interview is to understand your personal views and experience, and I'm interested in factors like trust the views cultural influences and how AI compares to human pharmacists for OTC guidance. So before we get started, I would like to go over some important points for before your participation. So this interview would take about 10 to 15 minutes. Everything you share is confidential and your name or personal details won't appear. You can skip any question if you don't want to answer, and you can stop the interview at any time without giving a reason. I would like to record the audio of our conversation purely so I can accurately transcribe your answers for later analysis, so the recording will be stored securely and will only be accessed by me and my researcher.

Speaker 1

So do I have your consent to participate in this interview?

Speaker 2 Yes.

Interviewer

And do I have your permission to audio record our conversation?

Speaker 2

Yes, okay,

Interviewer

can you reduce the voice behind please it's disturbing now. Okay,

Speaker 2

one second, please.

Interviewer

So great. I'll thank you, and I'll start with the questions. So my first question is, have you ever used any AI chatbot to get advice about OTC medication. If yes, can you describe your experience with using AI chatbots for OTC advice? And if no, what are your reasons for not using them?

Speaker 2

I have used AI chatbots sometimes like for pretty mild, things which happen seasonally or like happen frequently throughout the year, like headaches, coughs or some fever, it's pretty. What I can say, it's pretty. It comes and goes on its own. So usually I wouldn't need a hospital check. So for those I, I would use AI chat words. But even there, also I would find some some information that is a bit complicated, like too medical for me. So it does help me with the basics. But for something more than that, or more medical I might find some things missing.

Interviewer

Okay,so next question, when you use an AI chatbot for medication advice, what makes you feel confident in the information it provides

Speaker 2

when it's consistent with the usual medical advice I get from my friends, family or my and especially from my doctors, when the chat, when the Chatbot is consistent with what I have heard From my life, I am more inclined to believe.

Interviewer

Then, are there any things like certain things which you that make you feel cautious or uncertain while using them?

Speaker 2

It's mostly when it gives general answers, which is which is not at all specific, and it just generates an a random answer. It's not random per se, but it feels random, and it doesn't

Speaker 2

specifically. It feels more like a generic advice that anyone would give. Okay,

Interviewer

so the next like, what role do family or friends play in your healthcare decisions compared to an a chatbot? I'm sorry, how do you typically verify or cross check information from an ah Chatbot?

Speaker 2

Most, most frequently, I ask my parents, because they are more accessible to me. So before taking any medicine that a random chat board has generated, I consult someone who is not no at least kind and knowledgeable, which I can trust

you. Are knowledgeable or someone I could trust, so that's how I cross check.

Interviewer So what role do family or friends play in your healthcare decisions? Come back to an age headquarter,

Speaker 2

like I said, I always refer to my family before taking any sort of medications I wouldn't completely trust on a chat board for especially for medications, especially when it's something a

tad bit serious than a common view, even for common even for common cold. Also, I would involve my family, and I would ask their advice.

Interviewer

Okay,

Interviewer

next, like, if you have also consulted a pharmacist for an OTC advice, how would you compare that experience that to using of a chatbot?

Speaker 2

Sorry, I didn't understand the question.

Interviewer

Like, in what ways do you find for like pharmacist, like you consulted a pharmacist for an OTC advice. So how do you compare that with the experience using **a chatbot,**

Speaker 2

if it is pharmacist, advice is a little bit more like it's obvious that chat chatbots are more accessible and more convenient than a pharmacist, but pharmacist is, of course, more trustable because they have some responsibility while in a chat board has a responsibility for their medical advice. So just for common knowledge stuff which I can just verify, I would use chat boards. Otherwise, I would prefer a health medical expert.

Interviewer

Okay, so given a choice, would you prefer to get advice from a chatbot or a human pharmacist? I think you have answered that question like saying that you will take from a pharmacist, yes. So why, like is it because they could explain properly, or you find AI is very generic.

Speaker 2

Um, mostly even even if, in my opinion, even if a specific a has no responsibility for the health advice it gives, if it gives an advice, even even if it has a 99.99% accuracy in giving accurate health advice that 0.01 percentage of it. Giving an error is a big thing, especially when it's scaled up so and the fact that it is not responsible for our health advice and the company or does not take responsibility for this health advice, while a health medical profession do, makes a huge difference for me.

Interviewer

Okay, so the next question, so, do you think the people in your country that is in India generally trust, ah, chatbots for health advice? Why or if not? Why not?

Speaker 2

Um, um, I do think huge lot of people, especially among the younger generation, do trust AI in almost everything. So I would infer that even for medical advice, they would they might be trusting it.

Interviewer

Okay, so in what role does your country's healthcare system play in this decision?

Speaker 2

in our context, there can be times when proper medical access or getting a good doctor, especially a good doctor who is bit busy, could be really tedious task. So maybe I could see, I could see a being, not only convenient, rather giving quick advices, which we can act on. So that's something we can act on**.**

Interviewer

Okay, so are you aware of any rules or guidelines about using AI for health advice in your country? And do you think regulations are needed for chatbots?

Speaker 2

I'm not sure about any health advices. I don't think there's. I think it's a growing it's a growing and an urgent thing that's happening all around the world, not just India, that about regulations in AI, not only in health, but in many other things. But I do. Do I do agree with regulating a is a not just, not just something, I agree with something that is really necessary and should be done.

Interviewer

Okay? And next question, do you feel that cultural attitudes or local healthcare systems affect how much people trust chatbots?

Speaker 2

Yes, I think so. It's pretty obvious. We know people around are fooled by a anything. So I could see that people being fooled about from chatbots. So I think it's an obvious fact nowadays.

Interviewer

And like, don't know, do your culturally? Your people think like, no, do you feel like culturally? It affects how much people trust, AI, chatbots.

Speaker 2

Um, can you complete the question I didn't understand that completely.

Interviewer

yeah, culturally Do do you feel that culturally, like cultural attitudes affect how much people trust your chatbots?

Speaker 2

First of all, I think in the case of AI, people are struggling to understand what is real and what is fake. So even in chat boards, also in the initial skepticism of it being AI just manages when it speaks so naturally and so human like so especially, it speaks so confidently. Chat chat bots are notorious for being confident about stuff it is really wrong about. So I could see people being fooled, even older people

Interviewer

like you feel culturally, it affects people?

Speaker 2

Yes, I think so. Because, like, if you are asking people here, would they rather trust and trust a doctor or not even a doctor, even a face to face interaction with to a face to face interaction, rather than a random chat board, they would obviously pick the face to face interaction here, but like I said,people can be fooled because they won't. They don't know whether the information they're getting, the source is real, or it's just real, I mean, human or just a generated

Interviewer

Okay. So next question, have you ever found it difficult to understand or use information from a chat board

Speaker 2

at times, I would feel the language is too medical, but generally, like when it when it specifies just The brand names and all I would find it confusing because I'm not familiar with it. But for most general advices, they would get some idea, I guess.

Interviewer

Okay, so next question, have you ever received incorrect or concerning advice from a chatbot.

Speaker 2

So far, I haven't gotten any absolute, clearly wrong advices from a chatbot. But even if I did, I would like I said I would, I would confirm it with someone, especially with someone who has a medical background.

Interviewer

so next, how important is it for an AI chatbot to clearly state their limitation or not be overconfident?

Speaker 2

It is very important for me, like I said, AI could act really confident with stuff they haven't Not a clue about. They might generate completely wrong information and become really confident about it. So especially for this context, medical context, I think it should, it shouldn't be that confident. It should know its limitations, and it should specify that.

Interviewer

Okay, so next question, what skills or knowledge do you think are needed to use AI chat board for medication advice safely?

Speaker 2

I think people should have basic awareness about. Of health, and they should be educated about the about the diseases they might have or they have, before using things like aI so they they would have an instinct or some there's some idea if the AI is saying something better be wrong.

Interviewer

Okay, so next question, do you have any concern about sharing personal health information with AI Chatbot?

Speaker 2

I do, yes, I do worry about my privacy, because especially this bought by health, something personal. And the these things are these apps and all are really notorious for selling personal data for money. So I do find it really concerning

Interviewer

Okay. And next question, if AI chat robots were more transparent, safe or culturally adapted, would you use them more often? Yes,

Speaker 2

I think it should be more transparent about its limitations and its ability to become wrong at times, especially in this context, medical context, and even it should, I feel like, if it sounds a more culturally similar to this place, the way we talk, and more familiar to our way of talking,

Speaker2

I would probably use it more often.

Interviewer

Okay, thank you. What changes or features would make you more likely to trust and use AI chatbot for OTC medication advice, like, what advice would you give if it's possible to like healthcare providers or policy makers about using an AI chatbot in healthcare?

Speaker 2

Personally, I think adding local languages, especially in Indian context, we do have a lot of languages. Not everyone here are proficient in English, so adding local languages like Hindi, Tamil, Malayalam, Telugu, etc, and giving advices in more similar and

Speaker 2

which is more understandable to a layman, gives them a basic idea what they're the issue in hand and making sure the government health authorities and medical professionals who are responsible for all this, be able to check them would help us trust it a bit more.

Interviewer

Okay. Thank you. And that brings to end of my questions. And do you have any advice on healthcare for healthcare providers, app developers or government bodies on making a chatbot safer or more trustworthy?

Speaker 2

I think I have covered it in the interview, I guess. Okay, so,

Interviewer

thank you so much for sharing your time and experience with me today. Your input is very valuable for understanding and how AI works across different countries and cultures. Thank you for bearing with me. Thank you so much. I really appreciate your participation, and once I have completed my analysis, I will happy, I'll be happy to send you a short summary of the findings, if you would like, okay, okay, thank you. Thanks again. Thanks again. Thank you for participating. Okay.

BBB

Participant 3 Consumer 3

Interviewer

Hello,

Speaker 2 hello, hi,

Interviewer

Hi so thank you for taking time to join me today. My name is Abhirami, and I'm conducting this interview as a part of my research project at Griffith College. So my study is exploring how people in Ireland and India, perceive and trust AI chatbots when it comes to getting advice about the OTC medication, so over the counter medications. So by AI chat board, I mean tools like chat GPT, Microsoft copilot and other similar platforms like that, which can give health related advice online. So the aim of this interview is to understand your personal view and experience. I am interested in factors like trust, ease of use, cultural influences, and how AI compares to pharmacists in guidance. And before we start, I'd like to go over a few important points about your participation. This interview should take about 10 to 15 minutes, and everything you share is confidential. You can skip any question you don't want to answer, and you can stop the interview at any time without giving a reason. I would like to audio record our conversation so that I can transcribe your answers for analysis later, the recording will be stored securely and be only accessed by me and my research supervisor. So do I have your concern to participate in this interview?

Speaker 2

Yeah, sure, of course. Okay.

Interviewer

Do I have your permission to audio record our conversation also?

Speaker 2

Okay, no problem. Yeah. Okay,

Interviewer

thanks. So then I'll start with the questions. So the first question, have you ever used any AI chatbot to get advice about OTC medication? If yes, can you describe your experience with using AI chatbots for OTC advice? And if no, what are? What were your reasons for not using them?

Speaker 2

I have used chatbots, but not specifically for any healthcare related advices. I'm not, honestly, very comfortable with technology, like basic questions that I can ask from chat GPT about cooking or gardening, that I know, but I have not used anything as important and as health, okay, and I'm and if suppose I'm not feeling well or or if I need any particular medication, I would prefer going to the community pharmacist where I can just talk about my symptoms, my pain, whatever issue that I have with my body that I'm facing at the moment. And I think a more personal approach would be better because a pharmacy would check me and give me their their symptoms, or could give me a better approach of my medication for my health issues, rather than considering online. Okay, so when,

Interviewer

like, if you have not used so like, if you're using like, if you use the AI chat board for medication advice, what would make you, know, feel confident in information it provides?

Speaker 2

I don't think so. I would want to try using AI for medical advice, but even if I try, I would just want to compare two different medicines that were prescribed for the pharmacy. What is it for or GP has given, whatever medicines that the GP or the pharmacist has prescribed before? I would like to match it other than that, I don't think so. I would want to go more in detail, or consider AI for medication.

Interviewer

Okay, so are there any things like make you cautious not to use?

Speaker 2

Yes, of course. See there are. You know, everybody reacts differently. There could be multiple causes for a particular symptom that a person is facing. So I'm not sure the AI will know about my medical history and would be able to give me advice based on what exactly is happening, because maybe AI is giving a very general advice to any symptoms. So if there are any, and not just that, I'm not sure the language that AI uses, it could be very technical, very complicated, which I am not from a medical background, so I might find it difficult to understand. So these are the two things that I think would be my worry.

Interviewer

Okay, how like, if you're using like, what ways you prefer to cross check and verify your information from a chatbot?

Speaker 2

See, the best possible thing is to definitely go to a pharmacist, a. And ask for advice. The second thing is, my daughter, because she's more tech savvy, she might know it much better than that, but yeah, these are the two ways. Yeah,

Interviewer

okay, so do family or friends play a role in your healthcare decision compared to AI chatbots?

Speaker 2

See, like I mentioned before, my daughter is into healthcare profession, and she is more tech savvy. She knows the medical aspects better. So I definitely look up to my daughter for it. She makes me understand, even if a report comes, she actually helps me understand what the report or the medication would try to implicate and if, if there's some new medication that I've not taken before, she tells me what the medication is for and how is it going to affect my body, in which ways, what is the general purpose of that medicine? So I, I really trust my daughter, apart from the pharmacist here, of course.

So you said you consult the pharmacist mainly. So why you feel they are more reliable and useful than they are useful. But why do you really rely more on them then, yeah, yeah,

Speaker 2

see, AI is all. It's digital, right? There is no human touch to it. But a pharmacist, I know that person is educated, that person has taken a degree in pharmacy. They know about medicines. They know about human symptoms and human anatomy and what is going on. So I would prefer somebody who is, you know, educated, who has got a formal degree, who understands or

has done years of studies in medicine to grab them, and AI chatbot, who is human, has given some instructions to some coding to whatever, and they are giving a generalized answer. So definitely, I think a human touch, seeing a pharmacist is more reassuring than looking at a computer screen and getting an information from and not just that pharmacist or any GP, they will have, definitely my history, my medical history, and they might, they can always refer back, and I can always follow up with questions that I have, if I have any. So this is something which I don't think so any artificial intelligence or any chatbot would be able to provide.

Interviewer

So you prefer human pharmacist than Chatbot?

Speaker 2 Yes, of course, yes.

Interviewer

Okay. So do you think people in your country, in Ireland, like generally trust AI chatbots for health advice?

Speaker 2

I'm not sure. But I think, in my experience, people at my age, I don't think so we are very much interested, or we do want to rely on artificial intelligence, because we for, especially for something as serious as health at this particular age. But we grew up relying on people on not a machine. So I think people at my age would not be very accepting of artificial intelligence.

Interviewer

So does your country's healthcare system play a role in this decision?

Speaker 2

See, the healthcare system in Ireland is actually very good. It, it actually, it makes it easy to get a pharmacist. So I don't think so I would want to, you know, have I, there would be a need for an artificial intelligence for me, or I would want to rely on it, because there are the medical system is intact. It is very good here, and I can get support, at least at my age, I can get support easily, so I don't think so. Yeah.

Interviewer

Okay, so are you aware of any rules or guidelines about of the AI for health advice in your country, and do you think regulations are needed for chatbots?

Speaker 2

For chatbots, I don't know about any artificial rules that are there for artificial intelligence. I'm not sure about it, but I do think that there should be some rules for, you know, data protection, or because here in in Ireland, you see, everybody's medical history of everybody's personal details are very much secured. It cannot. Be lead like that. There is a small, strong GDP Assist system that is, that is implemented here. So I do not want my information, especially my medical information, to be seen by some unknown people. So same ways, if in artificial intelligence, there is they can do something about privacy control. And how can one be reliable? How safe the Chatbot is giving advice, whether it is giving a very generic advice or whether it is very detail or oriented advice. So you know, if it is a general advice and somebody is actually taking it, it might cause some serious issue if the advice is wrong, right. So one has to be very careful about all these things. So I think something related to privacy, personal privacy, and also the information that is going for medical, medicine or healthcare advice that is going it has to be strongly monitored, from my point of view. Yeah.

Interviewer

Okay, so do you find like cultural attitudes or local healthcare system affects how people how much people trust the Chatbot?

Speaker 2

Sorry Could you repeat the question once again, like,

Interviewer

Sure, do like cultural attitudes or local healthcare system affect how the how much the people trust like the chatbots like because of that, is why they are not trusting the Chatbot, or because of that, they are trusting the Chatbot like that.?

Speaker 2

Yes, people here put a lot of value on personal care. I think so. It's part of a culture to build trust with our healthcare providers. So yeah,

Interviewer

okay, so have you ever found it difficult to understand or use information from Chatbot? I think we you have already told me before.

Speaker 2

Yeah, yes. I feel though sometimes I find the language that the Chatbot use is very complicated. It's not that easy to follow, especially if, like I said, if I'm going to look for any medical assistance from a chatbot, it would be giving me very high level medical terms, which I'm not aware of. So I'm not sure if the language could be modified. Made it simple for somebody who's not from a medical background to understand. So, yeah, okay,

Interviewer

so how important do you feel is it for AI chatbots to clearly state their limitation and not be overconfident that they know the answer,

Speaker 2

if it is, if it ever was used, I would want to it to be very clear about what it couldn't tell me, actually.

Interviewer

Okay, so what skills or knowledge do you think are needed to use AI chatbot for medication advice?

Speaker 2

Yes, one should basically have the basic health knowledge on basic medical or technical skills to use it right, skills that I really don't have in this area, actually.

Interviewer

So do you have any concern about sharing your personal health information with AI chatbots,

Speaker 2

yes, of course, like I mentioned before, we consider here in Ireland, especially people. Everybody consider personal information to be very private. We do not want it to be shared around with people. Information to be passed or leaked. So I would be definitely worried about my information being shared. So privacy in AI needs to be guaranteed. I have to get a clear

assurance that my information is not getting need, especially when lot of crimes, everything is happening. People are misusing internet so badly. So this is my major concern.

Interviewer

if, like, chatbots were more transparent and safe, like, privacy wise, safe and culturally adapted? Would you use them more often?

Speaker 2

I don't think so. Unless my daughter was sitting with me and guiding me step by step. I don't think so I would be that comfortable. I would definitely need some body I trust to, you know, be with me when I'm using artificial intelligence or chat bot for medical assistance. Of course, I don't want to be be wrong. I have to be very. Careful about it, of course.

Interviewer

Okay, so what changes or features or what advice would you give to healthcare providers or policy makers about using AI chatbots in healthcare?

Speaker 2

Okay, so I think the language that is being used should be extremely simple for any person to understand it should not be highly medical or technical, highly complicated that it is difficult for a layman like me to gage what they are trying to say, the report is trying to say, or the advice is being given to me and always end it with, please check with your personal pharmacist, probably because they are the people who actually will give you the real help. Of course, I definitely do not want to completely entrust AI. I would want to believe a pharmacist or a GP to give me proper healthcare information, medical information, medicine advice, any ailment advice, so definitely, one note should be given at the bottom of every answer that you need to check with Somebody who is has sound knowledge about medication. Of course.

Interviewer

Okay, so that brings us to the end of my questions. And do you have any advice for healthcare providers or app developers or government bodies on making a chatbot safer or more trustworthy?

Speaker 2

Um, yeah, like I said before, to make it more trust, trustworthy privacy is like I mentioned before, privacy something that has to be taken into consideration. Second right? Medical advice should be considered general advice, because I don't think so. Ai takes into detail of everybody's personal health or personal history, so maybe it could be used for any generic information which could not be very harmful to people, some general advice, rather than something very complicated. People end up taking something seriously, not just that, if you take any medicines from in in a pharmacy, you need prescription. So I think one way that is safe that people don't take wrong or any high dosage medication because all of that needs prescription. So that way, I am sure that will be safe. Yeah, thank you.

Interviewer

Okay. Thank you so much for sharing your time and experiences with me today. Your input is very valuable for understanding how much like how trust in AI works across the different countries and cultures. Once I have completed my analysis, I will be happy to send you a short summary of the findings, if you would like once again, and I really appreciate your participation. Thank you.

Speaker 2

Thank you

Interviewer

Thank you so much. Thank you. Bye.

Participant 4 Consumer 4

Interviewer

Hello,

Speaker

hello, hi,

Interviewer

hi, thank you for taking the time to join me today. My name is Abhirami, and as I said before, I'm conducting this interview as a part of my research project. And my study is exploring how my study is exploring how people in Ireland and India perceive and trust AI chatbots when it comes to getting an advice about over the counter medications. By AI chatbot, I mean tools like chatgpt, Germany, Microsoft, copilot, etc. And the aim of this interview is to understand your personal views and experiences. And I am especially interested in factors like trust, ease of use, cultural influences, and how AI compares to human pharmacists for OTC guidance. So before we get started, I would like to go over a few important points the interview. This interview should take about 10 to 15 minutes. Everything you share is confidential. You can skip any question you don't want to answer at any time of the interview. And I would like to audio record our conversation so that I can accurately trans transcribe your answers for analysis later.

Interviewer

So do I have your consent to participate in this interview?

Yes.

Interviewer

And do I have your permission to audio record our conversation?

Yeah,

Interviewer

great. Thank you. I'll start with the questions. The first question is, have you ever used any AI chatbot to get advice about OTC medication? And if yes, can you describe your experience with using AI Chatbot? Or if no, what were the reason of not using

Speaker 2

No, I never tried an AI chatbot for before medicine advice. Honestly, I don't know how to use one, and in my villages, we usually just go to the local pharmacists and doctors to know, Okay,

Interviewer

and next question, when you use an AI chatbot for medication advice, what makes you feel confident or what will make you feel confident when you use

Speaker 2

if I were to try one, I feel safer it should and government stamped or clear.

Interviewer

and Okay, so are there any things that make you feel uncertain so that you're not using

Speaker 2

without looking someone's eyes? It's hard to me to believe the advice is correct. There is no personal connections, so I prefer to visit directly.

Interviewer

Okay. The next question is like, how do you verify if you get an information from Ai Chatbot? How would you like to verify

Speaker 2

if I was unsure, I'll ask my parents, neighbours or some local pharmacies. That's how we always done that before.

Interviewer

Okay? And next question is, what role like does your family and friends play a role in your healthcare decisions compared to an age headquarter,

Speaker 2

family and community plays the biggest role in deciding what medicine to take. Some people, they used to refer themselves. They were good medicines. Okay?

Interviewer

Okay, so next question is, if you have consulted a pharmacist like for OTC advice, and if How do you feel? Why it is more labeled than the other?

Speaker 2

Our our local health workers can also medical history because we used to visit most probably in the same hospitals or pharmacies, and depends on the local climates and even the seasonal illness. And I feel chatbot can know about that, about the climate and everything.

Interviewer

Okay, so given a next question is like given a choice you would prefer chatbot or pharmacist

Speaker 2

as a human, every single time for advice, I feel much deeper the way to visit directly to the pharmacies or hospitals.

Interviewer

Okay and I. Um,next person, do you think people in your country, that is in India, generally they trust AI chat boards for health advice or not?

Speaker 2

I feel in rural areas like mine, almost no one uses AI for health advice. Trust is built through the relationship, and not technology, which I feel

Interviewer

okay. So what next question is like, what role does your country's healthcare system play in this decision

healthcare access?

Speaker 2 We don't have clinics,

but not only or wasn't.

Speaker 2

Yet by still to see some warm the person who is

Interviewer

Hello. I'm sorry. Can you repeat that answer, sure

Speaker 2

healthcare access is not near. Okay, we have clinics, but not always nearby to our locations, so still, people prefer walking or traveling to see someone in person than using an unfamiliar text. Yeah. Not much knowledge about Okay.

Interviewer

Okay, so next question, are you aware of any rules or guidelines about using AI in your country.

Speaker 2

MMM

To be honest, I have no idea about the rules, but

them, but Hello, Isa, hi, hello,

Interviewer

can you hear me? Yeah, I lost you on the answer, can you repeat it again? I'm sorry.

Speaker 2

Be honest. I have no idea about the rules, okay, but I do think the government should be checking the safety of these tools before using these things, so maybe they get a trust to use these apps. Okay,

Interviewer

um, the next question like, do you feel that cultural attitudes or local healthcare system like affect how much people trust that vote?

Speaker 2

Yes. Here healthcare is Tara personal trust recommendations that why, even if AI become an accessible people might still avoid it. Okay.

Interviewer

Next question, have you ever found it difficult to understand, uh, AI chatbot or use information from it?

Speaker 2

I think I didn't find the advice to complicate your especially if it is English. I need it in our local languages, so it's easy to access. Okay.

Interviewer

So next question is, have you ever received any concerning advice from a chatbot when you tried?

Speaker 2

Not applicable, since I have not, haven't used one yet.

Interviewer

Okay, you have not tried it.

Interviewer

So how important is it for an AI chatbot to clearly state the limitation? Do you feel? How important do you feel?

Speaker 2

It's just guess or act overconfident that could be dangerous. It must be honest about what I doesn't know. Okay,

Interviewer

the next question means, what skills do you think are needed to use AI Chatbot. I think

Speaker 2

you need both education and digital skills to use it safely. Okay,

Interviewer

okay. The next question is, do we have digital skills? Sorry? Be okay. Do you have any concern about sharing personal health information with AI chatbots?

Speaker 2

I don't be worried my health details could be used if it's on the internet, okay, I feel it's not safe.

Interviewer

Okay, so if AI chatbots were more safe, transparent and culturally adapted to your regional language, would you use them more often, like every time,

Speaker 2

Maybe I'll try and Ifmy local pharmacist recommended,

Interviewer

what change? That's the last question. Like, what change of features would you like to be given to the AI chatbot to make that would make you trust more

Speaker 2

What I feel more people here to trust in it. It should be work, offline, use local languages, having government approvals, and always remind people to check with a human Health Worker before using this. I feel better. Okay.

Interviewer

Okay, so that brings us to the end of my questions, and thank you so much for sharing your time and experience with me today. Your input is very valuable for understanding how the trust in AI works across different countries and cultures. And once I have completed my analysis, I will be happy to send you a short summary of findings, if you like, thanks again, and I really appreciate your participation.

Interviewer

Thank you so much.

Speaker 2

Thank you, bye, bye.

Participant 5 Pharmacist 1

Speaker 2

Hello,

Interviewer

, hello, Thank you for taking time to join me today. My name is Abhirami, and as I said before, I'm conducting this interview as a part of my MSc research project. My study is exploring how people in Ireland and India perceive and trust AI chatbots when it comes to getting an advice about over the counter medication, and by chatbot, I mean chatgpt, Germany, etc. So the aim of this interview is to understand your personal views and experiences, and I'm especially interested in factors like trust, ease of use, cultural influences, and how AI compares to human pharmacists. So before we get started, I would like to go over a few important points about your participation. The interview should take about 10 to 15 minutes, and everything you share is confidential. You can skip any question at any time of the interview without giving any reason. I would also like to audio record our conversation, purely so that I can accurately transcribe your answers for analysis later.

Interviewer

So do I have your concern to participate in this interview?

Speaker 2

Yeah.

Interviewer

And do I have your permission to audio record our conversation?

Speaker 2

Yes,

Interviewer

great. Thank you. And I'll start with the questions now. So the first question is, have you ever use any AI chat board to get advice about OTC? If yes, describe your experience and if no, why? Why you didn't use them? What were the reason of not using

Speaker 2

okay, yes, I have tried a couple of AI chatbot mostly because of some of my patients mentioned using them, and I wanted to see what kind of advice they were getting. It's very quick. You type in symptoms, and it's giving it's gives you some general drugs options, but I notice it doesn't always highlight important safety points like contraindications or drug interactions. That worries me, because the patients might not realize those risk

Interviewer

Okay. Next question,

Interviewer

as a pharmacist, like when you use AI chatbot for medication, what makes you feel confident?

Speaker 2

I feel confident when the chatbots advisor line up closely with what I know from the trusted clinical guidelines of our references, if they explain the reasoning or the site, reputed sources, that increases my trust.

Interviewer

Okay, next question, are there any things that, are there any things that make you feel cautious?

Speaker 2

What worries me is when the chat board gives very weak or one size fits all guidance that can be unsafe, especially when the patients have other health conditions.

Interviewer

Okay? And how do you verify, like as a Pharmacist how do you verify the information from age output?

Speaker 2

I don't take any anything at face value. I double check through Micromedex or the Irish Board of medicine support resources before confirming anything

Interviewer

okay, and as a fact like, what role do you think family or friends play in healthcare decisions compared to chatbots?

Speaker 2

Family and Friends don't really play, really play a role in my professional decisions. Though, for patients, those personal recommendations often matter just as much as per professional advice.

Interviewer

Okay, next question is, if, in what ways do you think the Chatbot is more reliable than pharmacists, or pharmacists is more reliable than chatbot to patients

Speaker 2

with a pharmacist consultations, we can dig into the personal, specific histories concern a lifestyle. Sometimes a chatbot simply can cannot do well, that level of tailoring makes a huge differences.

Interviewer

Okay, so given a choice, would you prefer advice from a chat board or a pharmacist?

Speaker 2

If I have to choose, I do go for the Human advice every time. It's a safer, most personalized and accountable.

Interviewer

Okay, and do you think people in Ireland generally trust AI chat board for health advice

Speaker 2

in Ireland, most people still prefer seeing a GP or pharmacist in person, even if they experiment with AI now one time.

Interviewer

Okay. And next question is, what role do you think your country healthcare is simply in this decision?

Speaker 2

Our healthcare system makes it relatively easy to access the professional device, so there's less incentives to depend fully on AI. Okay.

Interviewer

Next question, are you aware of any rules or guidelines about using AI in your country?

Speaker 2

Yes, I am aware the EU AI act set rules for the AI health tools, but even so, we still need sector specific rules for the healthcare to avoid harm.

Interviewer

Okay. The next question is like, do you think the cultural attitudes affect how people trust chatbots?

Speaker 2

Yes, culturally, we like professional who are trained, regulated and accountable chat chat bots don't yet meet that mark for the most people here.

Interviewer

So as a professional, have you ever found it difficult to understand information from a chatbot? Or do your patients feel?

Speaker 2

Sometimes patients have shown me a chatbot output that are overly technical, hard for a non professional to interpret.

Interviewer

And have you ever received any incorrect or concerning advice from a chatbot?

Speaker 2

I have seen incorrect advice before, do nothing catastrophic, but it's enough to show the why you must verify before acting,

Interviewer

and how important is it for an AI to clearly state the limitations.

Speaker 2

It's essential that chatbot be at upfront about their limits and not to try to sound more certain than they are really are

Interviewer

okay, and what skills do you think are needed for AI chatbot, medication advice

Speaker 2

users need to decent Health Literacy and ideally, the habit of growth checking any health information they get from the AI.

Interviewer

And the next question is, do we have any concern about sharing personal health information with AI chatbots

Speaker 2

in the privacy is a huge concern. We were talking about the sensitive health data that shouldn't be mishandled or solved,

Interviewer

and if AI chatbots were more transparent, safe or culturally adapted, would you tell your patients, or would you use them more often?

Speaker 2

If chat, chatbots were more transparent and short safely, checks clearly, I might be more willing to integrate them into the daily work.

Interviewer

And last question is, what changes or what advice would you give the healthcare providers or policy maker about using AI chatbot in healthcare?

Speaker 2

UUU

They should cite their sources, highlight warning signs, and buy and be regulated like other medical tools, I think the pharmacist should be involved in setting those standards.

Interviewer

Okay, thank you, and that brings us to the end of my questions, and thank you so much for sharing your time and experiences with me today. Your input has been very valuable for understanding how trust in AI works across different countries and culture. Once I have completed my analysis, I'll be happy to send you a short summary of findings, if you like. Thanks again, and I appreciate your participation. Thank you.

Speaker 2

Thank you. Bye.

Participant 6 Pharmacist 2

Interviewer

Hello, hi,

Speaker 2

hi.,

Interviewer

thank you for taking time to join me today. My name is Abu yami, and I'm, as I said before, I'm conducting this interview as a part of my MOC research project. So my study is exploring how people in Ireland and India perceive and trust AI. Chat board, when coming coming about advice about over the over the counter medication. So by chat board, I mean chat, GPT, Gemini, etc. So the aim of this interview is to understand your personal views and experiences, and I'm especially interested in factors like trust, ease of use, cultural influences, and how AI is compared to human pharmacists. So before we get started, I would like to go over a few important points about your participation this interview would take around 10 to 15 minutes. Everything you share is confidential. You can skip any question if you don't want to answer at any time of the interview, and I would like to audio record our conversation so I can accurately transcribe your answers for analysis later.

Interviewer

So Do I have your consent to participate in this interview?

Speaker 2

Yeah, sure.

Interviewer

And do I have your permission to audio record our conversation?

Speaker 2

Yeah, okay,

Interviewer

thank you. So I'll start with the questions. So have you ever used an AI chatbot or tried using it to get an advice about OTC medication? If yes, can you describe your experience? And if no, what were your reasons for not using them?

Speaker 2

Yes, of course, I have used AI chat boots, when we say especially for using for looking for any OTC queries from patients. It helps me to quickly shortlist options so that I can advise faster, but I still need to add local details like brand names or available of trucks that are available in India, like that. Yeah.

Interviewer

Okay, so, thank you. So next question is, when you use an AI chat board for medical advice, what makes you feel confident to use it in the information it provides?

Speaker 1

I'm sorry, can you repeat the answer your voice got broken?

Speaker 2

I mainly trust the chatbots when it's clearly up to date and when it includes information that is relevant to our local context, and not just what common in US and Europe.

Interviewer

Okay, thank you. So, are there any things that makes you feel uncertain or cautious?

Speaker 2

Yes, I'm cautious when the advice seems to ignore local regulations, so when it leaves age recommendations, which are very important in OTC medicines,

Interviewer

as a pharmacist, do you verify or cross the information from Ai chat boots?

Speaker 2

Yeah, of course, I always double check the India specific databases or use our pharmacy professional networks online for confirmation while using this chatbots.

Interviewer

Okay, thank you. So, what do you think in the family and friends in take a major role in healthcare decisions compared to AI chatbots?

Speaker 2

Yeah, in India, patients often involve their family in decision, in taking decision for which medicines to take. So even if they use an AI chatbot, the family's opinion can outweigh the decision made by the Chatbot.

Interviewer

Okay? And next question is, if you have like in what ways do you feel the Chatbot is reliable than pharmacists, or pharmacists more reliable than Chatbot.

Speaker 2

Chatbots can provide acute responses, but for complex health scenarios, pharmacists can piece together the patient's history, allergies and preferences in a way that AI cannot assess that.

Interviewer

Okay, so given a choice,who would you prefer chatbot or a pharmacist?

Speaker 2

I will choose a mixed approach, because chatbot for a starting point and pharmacist for the final confirmation.

Interviewer

Okay. Thank you. So do you think the people in your country, like in India, are generally they trust the AI chatbots for health advice.

Speaker 2

I think that in people in general, they are more open to AI, mostly the young professionals are more open to AI. But in rural areas, the trust towards this AI tools is much lower.

Interviewer

Okay, and what role does your country's healthcare system play in this decision.

Speaker 2

Public health care often has several delays, and AI can fill that gap in minor cases, but at last, it is not yet an official, official pathway.

Interviewer

Okay, so do you feel the cultural attitudes? Affect how people trust the Chatbot?

Speaker 2

Yes, of course, our healthcare culture put more trust in people we know, like local doctors or pharmacists, then compared to this, AI chatbots.

Interviewer

Okay, so do you find it difficult to understand or use information from a chatbot, even being a pharmacist.

Speaker 2

Yeah, sometimes the answers use medical job, and that's hard for the general public to understand. Yeah.

Interviewer

Okay, so next question is, have you ever received any incorrect or concerning advice from a chatbot?

Speaker 2

Yeah, occasionally I get incomplete advice from Ai, but nothing serious in my own use.

Interviewer

Okay? And next question is, how important is for the AI chatbots to clearly state its limitation?

Speaker 2

The chatbot must make it obvious that the advice is not final and should be confirmed with a professional

Interviewer

okay. And next question, what skills or knowledge do you think are needed to use AI chatbot for getting a medication advice safely?

Speaker 2

one should have a basic awareness of medicine safety that helps us to keep this chat bot use safe.

Interviewer

Okay? And do you think, do you have any concern about sharing a personal health information with a chatbot?

Speaker 2

Yeah, of course. I worry about the privacy, especially since unregulated app could misuse the data we provide,

Interviewer

okay, and if AI chatbots were more transparent or safe and culturally adapted, would you ask like, would you promote people to use them more?

Speaker 2

Yeah, of course, if they speak more in our local language and match with the needs of the Indian people, I would use them more and recommend them to the patients.

Interviewer

Okay, the last question is, what change our features, or what advice would you give to the healthcare providers regarding the using of ah output?

Speaker 2

My suggestions would be to add local language support, then more local brands and also privacy and safety and privacy to enhance the safety and privacy of this AI tools. Okay,

Interviewer

thank you, and that brings us to end of my questions. And thank you so much for sharing your time and experience with me today, your input is very your input is very valuable for understanding how the trust of trust in AI works across different countries and cultures. So once I have completed my analysis, I'll be happy to send you a short summary findings, if you like, and thanks again. Thank you so much. I really appreciate your participation. Thank you.

Speaker 2

Thank you so much. And wishing you all the best for your project. Thank you.

Interviewer

Thank you.

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Appendix G – Thematic Analysis

Thematic Analysis Framework

Deductive Codes (Theory/Research-driven)	Inductive Codes (Data-driven)
Trust in AI Healthcare Tools – willingness to rely on chatbot advice	"Trust it for basic symptoms" - Basic/conditional trust
Transparency & Verification – importance of AI citing sources / disclosing limits	"AI is giving a very general advice" - Generic advice not tailored
Role of Human Pharmacist – human expertise, accountability, empathy	"No human touch" - Absence of empathy/personal connection
Cultural Influence – differences by context (Ireland vs India, rural vs urban)	"Without looking someone's eyes, it's hard to believe" - Need for human connection for credibility
Healthcare Accessibility – influence of system availability on reliance on AI	"If advice matches what I already know" - Consistency builds trust
Risk & Safety Concerns – accuracy, disclaimers, built-in safety flags	"My next step is usually to just bring the pharmacy" - Pharmacist verification
Adoption Conditions – desired improvements for AI use	"I ask my parents… neighbours" - Community/family validation
Supplementary Role of AI – chatbots as support tools rather than substitutes	"Pharmacist reassures me more" - Reassurance from professional
	"99.99% accuracy still not enough" - Accountability gap in AI
	"In Ireland… people value personal care" - Cultural value of face-to-face care
	"In rural India, almost no one uses AI" - Rural tech limitations
	"Built-in risk flags would improve trust" - Risk alert requirement
	"Add local languages" - Language accessibility
	"Work offline" - Practical barriers in rural areas

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	"Always end with 'check with your pharmacist'" - Desire for disclaimers

Theme 1: Trust and Confidence in AI Chatbots

Definition: This theme covers how participants expressed conditional trust in AI chatbots. Trust was dependent on the context, type of information, and alignment with existing knowledge or guidelines.

How it emerged: It emerged from repeated comments about AI being suitable for *basic* or *general* health advice but not for specific or critical medical decisions. Concerns over lack of accountability, absence of "human touch," and technical jargon contributed to cautious trust.

1.1: Limited Trust for General Information

Definition: Participants expressed confidence in using chatbots for basic symptom checking or minor health concerns.

P1: *"Trust it for basic symptoms."*

P3: *"AI is giving a very general advice… I would prefer somebody… who understands… human anatomy."*

P4: *"Without looking someone's eyes, it's hard to me to believe the advice is correct. There is no personal connection, so I prefer to visit directly."*

1.2: Need for Transparency and Verification

Definition: Trust increased when AI aligned with clinical guidelines or explained its reasoning. Participants wanted transparency about limitations.

P2: *"AI is all. It's digital, right? There is no human touch to it. But a pharmacist, I know that person is educated, that person has taken a degree in pharmacy… AI chatbot… is giving a generalized answer."*

P5: *"I feel confident when the chatbots advice line up closely with what I know from the trusted clinical guidelines… if they explain the reasoning or cite reputed sources, that increases my trust."*

Theme 2: Barriers and Concerns

Definition: This theme reflects the skepticism participants had towards chatbot advice, highlighting the need for external verification and reliance on familiar or consistent sources.

How it emerged: Participants frequently described "double-checking" advice with pharmacists, family, or professional networks. Reliance on human confirmation was universal.

2.1: Reliance on Human Verification

Definition: Chatbot advice was never accepted at face value; participants always confirmed it through human or professional sources.

P1: *"I feel much more confident if the advice I get mad with information I have already read about or something I have been told before by a pharmacist."*

P3: *"I don't think so. I would want to try using AI for medical advice… I would like to match it… other than that, I don't think so. I would want to go more in detail, or consider AI for medication."*

P1: *"So I'm not fully sure about that. What the chat would say is my next step is usually to just bring the pharmacy active call. Feels more reassuring and reliable for me."*

P3: *"A chatbot? See, the best possible thing is to definitely go to a pharmacist, and ask for advice. The second thing is, my daughter, because she's more tech savvy, she might know it much better than that, but yeah, these are the two ways."*

2.2: Familiarity and Consistency as Drivers of Trust

Definition: Chatbot advice was trusted more if it matched information from doctors, pharmacists, or family.

P2: *"When it's consistent with the usual medical advice I get from my friends, family or my and especially from my doctors… I am more inclined to believe."*

P2: *"Most, most frequently, I ask my parents, because they are more accessible to me. So before taking any medicine that a random chat board has generated, I consult someone who is… knowledgeable, which I can trust."*

P4: *"If I was unsure, I'll ask my parents, neighbours or some local pharmacies. That's how we always done that before."*

P5: *"I don't take anything at face value. I double check through Micromedex or the Irish Board of medicine support resources before confirming anything."*

P6: *"I always double check the India-specific databases or use our pharmacy professional networks online for confirmation."*

Theme 3: Human versus AI Comparison

Definition: Participants consistently preferred human pharmacists for their expertise, accountability, and ability to tailor advice. AI was positioned as a supplementary tool.

How it emerged: Frequent comparisons between "human touch" and "digital advice" highlighted the perceived superiority of pharmacists.

3.1: Human Touch and Accountability

Definition: Participants valued empathy, responsibility, and the ability to ask follow-up questions.

P1: *"Pharmacist reassures me more, because I can actually ask all of questions with AI, it feels harder to dig deeper into details of clarify doubts."*

P2: *"Even if AI has 99.99% accuracy… that 0.01 percentage of it…"* (reflecting concern about lack of accountability).

P3: *"See, AI is all. It's digital, right? There is no human touch to it. But a pharmacist, I know that person is educated… They know about human symptoms and human anatomy and what is going on."*

P4: *"As a human, every single time for advice, I feel much deeper the way to visit directly to the pharmacies or hospitals."*

3.2: Supplementary Role of AI

Definition: AI was seen as useful for minor ailments but not as a substitute for pharmacists.

Examples/Quotes:

P5: *"With a pharmacist consultation, we can dig into the personal, specific histories… that level of tailoring makes a huge difference."*

P6: *"Chatbots can provide acute responses, but for complex health scenarios, pharmacists can piece together the patient's history, allergies and preferences in a way that AI cannot."*

P1: *"If it's a simple situation, like a mild headache or basic cold, I think the chatbot is fine… but it seems like tricky or more serious, I had definitely prefer speaking to your pharmacist."*

P2: *"So just for common knowledge stuff which I can just verify, I would use chat boards. Otherwise, I would prefer a health medical expert."*

Theme 4: Cultural and Contextual Influences

Definition: Cultural norms and healthcare access influenced the degree of chatbot adoption and trust.

How it emerged: Participants highlighted cultural trust in professionals (Ireland), openness to AI (urban India), and reliance on family/community (rural India)

4.1: National and Cultural Differences

Definition: Irish participants placed stronger trust in pharmacists; Indian participants (especially youth) were more open to AI.

P1: *"Oh, in Ireland, I think people still learn more towards advice from professionals, rather than replaying fully on chatbots."*

P2: *"Um, um, I do think huge lot of people, especially among the younger generation, do trust AI in almost everything."*

P3: *"Yes, people here put a lot of value on personal care. I think so. It's part of a culture to build trust with our healthcare providers."*

P4: *"I feel in rural areas like mine, almost no one uses AI for health advice. Trust is built through the relationship, and not technology."*

4.2: Healthcare System Accessibility

Definition: Readiness to adopt AI was shaped by how easily participants could access healthcare.

P1: *"Since the healthcare system here make it fairly and easy to access a pharmacist, there isn't much pressure to depend only on a chatbot."*

P2: *"In our context, there can be times when proper medical access… could be really tedious… so maybe I could see AI… giving quick advices."*

P5: *"Our healthcare system makes it relatively easy to access professional advice, so there's less incentive to depend fully on AI."*

P6: *"In India, patients often involve their family in decision… so even if they use an AI chatbot, the family's opinion can outweigh the chatbot."*

P3: *"In Ireland… everybody's personal details are very much secured… so privacy in AI needs to be guaranteed."*

Theme 5: Desired Improvements for Adoption

Definition: Participants identified safeguards, transparency, and cultural adaptation as prerequisites for chatbot adoption.

How it emerged: Participants proposed built-in risk alerts, simple language, local languages, offline use, and regulatory oversight.

5.1: Safety and Transparency

Definition: Calls for built-in risk flags, citations, and clear disclaimers.

Examples/Quotes:

P1: *"Built-in risk flags in a chatbot would definitely improve my trust… I would feel like a safer and more reliable system."*

P3: *"The language should be extremely simple… always end it with 'please check with your personal pharmacist'… I definitely do not want to completely entrust AI."*

P1: *"Chatbot should make it clearer when it's not fully certain… that way I know when to double-check with the pharmacist."*

P2: *"It should be more transparent about its limitations and its ability to become wrong at times… especially in the medical context."*

P5: *"They should cite their sources, highlight warning signs, and be regulated like other medical tools."*

5.2: Cultural and Practical Adaptations

Definition: Requests for language support, offline use, and local relevance.

Examples/Quotes:

P2: *"Adding local languages like Hindi, Tamil, Malayalam, Telugu… and giving advice in a way that is more understandable to a layman… would help us trust it more."*

P4: *"It should work offline, use local languages, have government approvals, and always remind people to check with a human Health Worker before using this."*

Thematic Framework Table

Theme	Sub-theme	Definition/Meaning	Example Quotes	Link to RQ
1. Trust and Confidence in	1.1 Limited Trust for General	AI chatbots are seen as useful for basic advice but not	P1: "Trust it for basic symptoms."	Yes

AI Chatbots	Information	complex medical decisions	P3: "AI is giving a very general advice… I would prefer somebody… who understands… human anatomy." P4: "Without looking someone's eyes, it's hard to me to believe the advice is correct. There is no personal connection, so I prefer to visit directly."	
	1.2 Need for Transparency and Verification	Trust grows when AI advice aligns with guidelines or is transparent about limitations	P2: "AI is all… digital… pharmacist… educated… AI chatbot… giving a generalized answer." P5: "I feel confident when the chatbots advice line up closely with what I know from the trusted clinical guidelines… if they explain the reasoning or cite reputed sources, that increases my trust."	Yes
2. Barriers and Concerns	2.1 Reliance on Human Verification	Participants always double-check AI advice with pharmacists, doctors, or family	P1: "I feel much more confident if the advice I get mad with information I	Yes

			have already read about or… by a pharmacist." P3: "I don't think so… I would just want to compare… other than that… not go in detail." P1: "My next step is usually to just bring the pharmacy active call." P3: "The best possible thing is definitely go to a pharmacist… the second thing is my daughter…"	
	2.2 Familiarity and Consistency as Drivers of Trust	Advice trusted if consistent with prior knowledge or familiar sources	P2: "When it's consistent with the usual medical advice… I am more inclined to believe." P2: "Most frequently, I ask my parents… before taking any medicine that a random chat board has generated." P4: "If I was unsure, I'll ask my parents, neighbours or some local pharmacies. That's how we always done that before." P5: "I don't take	Yes

			anything at face value. I double check through Micromedex…" P6: "I always double check the India-specific databases or use our pharmacy professional networks online…"	
3. Human versus AI Comparison	3.1 Human Touch and Accountability	Human pharmacists preferred for empathy, accountability, and reassurance	P1: "Pharmacist reassures me more, because I can actually ask all of questions…" P2: "Even if AI has 99.99% accuracy… that 0.01 percentage…" P3: "See, AI is all. It's digital, right? There is no human touch to it… pharmacist… educated." P4: "As a human, every single time for advice, I feel much deeper the way to visit directly."	Yes
	3.2 Supplementary Role of AI	AI seen as convenient for minor ailments but not a substitute	P5: "With a pharmacist consultation, we can dig into the personal, specific histories… that level of tailoring makes a huge difference."	Yes

			P6: "Chatbots can provide acute responses, but… pharmacists can piece together the patient's history, allergies and preferences in a way that AI cannot." P1: "If it's a simple situation… chatbot is fine… but serious, I prefer speaking to pharmacist." P2: "So just for common knowledge stuff… I would use chat boards. Otherwise, I would prefer a health medical expert."	
4. Cultural and Contextual Influences	4.1 National and Cultural Differences	Trust shaped by cultural expectations	P1: "In Ireland, I think people still learn more towards advice from professionals…" P2: "I do think huge lot of people, especially among the younger generation, do trust AI…" P3: "Yes, people here put a lot of value on personal care…" P4: "In rural areas like mine,	Yes

			almost no one uses AI… trust is built through the relationship…"	
	4.2 Healthcare System Accessibility	Readiness to adopt AI based on access to pharmacists and healthcare services	P1: "Since the healthcare system here make it fairly and easy to access a pharmacist, there isn't much pressure to depend only on a chatbot." P2: "In our context… getting a good doctor… could be tedious… so AI can be convenient." P5: "Our healthcare system makes it relatively easy to access professional advice…" P6: "In India, patients often involve their family in decision… family's opinion can outweigh the chatbot." P3: "In Ireland… everybody's personal details are very much secured… so privacy in AI needs to be guaranteed."	Yes

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5. Desired Improvements for Adoption	5.1 Safety and Transparency	Participants wanted AI to include warnings, risk flags, and citations	P1: "Built-in risk flags in a chatbot would definitely improve my trust." P3: "The language should be extremely simple… always end it with 'please check with your personal pharmacist'…" P1: "Chatbot should make it clearer when it's not fully certain…" P2: "It should be more transparent about its limitations…" P5: "They should cite their sources, highlight warning signs, and be regulated like other medical tools."	Yes
	5.2 Cultural and Practical Adaptations	Adoption requires language support, offline use, and local adaptations	P2: "Adding local languages like Hindi, Tamil, Malayalam, Telugu… more understandable to a layman." P4: "It should work offline, use local languages, have government approvals, and always remind	Yes

			people to check with a human Health Worker.”	

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