EDUCATING THE GENERAL PUBLIC ON THE RISKS OF SELF-MEDICATION

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Dedicated to

Martina, for her love and support.

To my parents, for everything they have done for me.

To Millie, for always being by my side.

To my grandfather Pius, whose memory I cherish.

Lastly to my family and friends, for their encouragement.

Thank you.

Abstract

The relevance and impact of self-medication in the primary healthcare system is an area that receives focus as a means to empower patients and increase efficiency in the healthcare ecosystem. The aims were to determine the prevalence and the risk associated with self-medication practices from the perspectives of customers, medical practitioners and pharmacists. Two questionnaires regarding the risks of self-medication, one intended for the general public and one for healthcare professionals, were developed and validated. Questionnaires were disseminated through social media and by hand through a community pharmacy. Data analysis was carried out. An information sheet to raise awareness on the risks of self-medication is developed, validated and disseminated to the general public. The general public's questionnaire was answered by two hundred sixty-one participants of which 71% (n=184) were female and 77% (n=201) admitted to self-medicating with the main reason being that the illness was minor (62%, n=163). The most popular type of medication used for self-medication was cough syrups (63%, n=165) whilst the main risk associated with self-medication was the incorrect choice of treatment (54%, n=140). The correlations between level of education and patients knowing the meaning of self-medication (p=0.039) and patient's level of education and whether or not they self-medicate (p=0.022) were statistically significant. The healthcare professional's (HCP) questionnaire was answered by sixty-six participants of which 58% were female (n=38) and 64% were doctors (n=42). The main reason HCP believed patients self-medicate was due to the waiting times at healthcare facilities (73%, n=48) whilst menstrual pain and cough and common cold were the main medical issues HCP think patients opt to self-medicate for (74%, n=49). The general public is self-medicating, with the main reason being that the illness was minor. Healthcare professionals reported that access to medical facilities may be a driving factor for self-medication. Self-medication challenges may be lessened by educational initiatives aimed at both healthcare professionals and community

members, as well as increased access to high-quality public healthcare, enforcement of laws governing the use of prescription medications, and decreasing the burden of infectious diseases. Further studies could be undertaken to assess risks associated with self-medication in terms of misuse of medication or delay in seeking medical advice.

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List of Abbreviations

CDC	Centers for Disease Control and Prevention
FDA	US Food and Drug Administration
FIP	International Pharmaceutical Federation
NSAIDS	Non-Steroidal Anti-inflammatory Drugs
OTC	Over the Counter
POM	Prescription only Medications
Quest Gen Pub	General Public Questionnaire
Quest HCP	Health Care Professionals Questionnaire
WHO	World Health Organization
WSMI	World Self Medication Industry

Chapter 1: Introduction

This chapter focuses on the risks of self-medication by providing an overview of its historical context, key factors influencing its practice, associated characteristics, benefits, and risks. Additionally, it explores various strategies aimed at mitigating these risks and promoting safer self-medication practices in Malta. By addressing these aspects comprehensively, the chapter aims to enhance understanding among readers and empower them to make informed decisions regarding their health and medication use.

1.1. History of Self-Medication

The World Health Organization (WHO) defines self-medication as "the use of drugs to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent diseases or symptoms".[1] During the 1960's the practice of self-medication was regarded as useless and even detrimental to health and it was in the 1970's when the World Self Medicating Industry (WSMI) started pushing forward the concept of prescription and non-prescription drugs (Bennadi, 2014).

In the 1980s there was a major focus on the access to modern and effective medication where medications that were previously available by a practitioner's prescription, were made accessible to patients as non-prescription medications. In 1993, the WSMI's 11th General Assembly focused on the 'Globalisation of the self-medication market: challenges and opportunities'. In 1997 the WSMI published the first global review of consumer surveys called 'Health care, self-care and self-medication'. In 1998 the role of the pharmacist in self-medication was explained by the WSMI and the International Pharmaceutical Federation (FIP).

[1] World Health Organisation (WHO). WHO (2000) Guidelines for the Regulatory Assessment of Medicinal Products for Use in Self-Medication [Internet]. Geneva (Switzerland): WHO; 2000 [cited 2024 Jul 5]. Available from: http://apps.who.int/medicinedocs/pdf/s2218e/s2218e.pdf.

In 1999 the WSMI [2] and FIP [3] issued a joint statement titled ‘Responsible self-medication’. In 2000, the WHO published guidelines for the regulation assessment on medicinal products used for self-medication. Between 2006 and 2010 there were further improvements and adaptations on the WHO self-medication guidelines, for them to be more effective (Bennadi, 2014). A WHO guideline on self-care interventions for patients' health and wellbeing was published in 2021. With a focus on disadvantaged communities and settings with constrained capacity and resources in the healthcare system, this guideline seeks to give evidence-based recommendations on important public health self-care interventions for promoting health. The FIP [4] also published a manual for pharmacists in 2022 with the title "Empowering self-care." This manual was developed in order to help pharmacists assist self-care in six common consultation areas: sore throat, gastrointestinal issues, musculoskeletal pain, child fever, sexual health, and disinfection. The purpose of this manual is to inform and motivate the pharmacy staff to address the obstacles, difficulties, and realities of self-care in various situations while maximising self-care. The manual developed by the FIP lists various common ailments that can typically be treated on one's own and outlines potential remedies.[5] Over time, self-medication has become a widespread practice. Its prevalence has significantly increased due to the easy availability of online information and the wide range of over-the-counter (OTC) drugs accessible. Many people commonly self-treat various everyday ailments, such as

[2] World Self-Medication Industry (WSMI). WSMI (2010) The Story of Self-Care and Self-Medication [Internet] Ferney-Voltaire (France) [cited 2024 Jul 6]. Available from: http://www.wsmi.org/pdf/storyofselfcare_bdpage.pdf.

[3] World Health Organisation (WHO). WHO (2021) Guidelines on self-care interventions for health and well-being [Internet]. Geneva (Switzerland): WHO; 2021 [cited 2024 Jul 6]. Available from: https://app.magicapp.org/#/guideline/Lr21gL.

[4] World Health Organisation (WHO). WHO (2021) Guidelines on self-care interventions for health and well-being [Internet]. Geneva (Switzerland): WHO; 2021 [cited 2024 Jul 6]. Available from: https://app.magicapp.org/#/guideline/Lr21gL.

[5] International Pharmaceutical Federation (FIP). FIP (2022) Empowering Self-care [Internet]. The Hague (Netherlands): FIP; 2021 [cited 2024 Jul 7]. Available from: https://www.fip.org/file/5111.

headaches, coughs, allergies, and minor pains, using these easily obtainable medications (Ludovic et al., 2014).

1.2. Characteristics of Self-Medication

To use a non-prescription product safely and effectively, consumers must take on several roles typically handled by a pharmacist. This includes accurately identifying symptoms, setting clear therapeutic goals, and selecting the right product. Consumers must determine the appropriate dosage and schedule while considering their medical history, potential contraindications, existing health conditions, and any concurrent medications. It is also crucial to monitor how their body responds to the treatment and watch for any adverse effects, ensuring safety and effectiveness throughout the process (Abubakar et al., 2023).

For non-prescription medicinal products, ensuring their safe and effective use requires comprehensive information from several sources. This includes details from the labelling material, which provides essential instructions and warnings about the product. Patient information texts, often included with the product, offer further guidance on how to use it properly. Personal experience with the product also contributes valuable insights into its effects and safety. Additionally, various media sources, such as articles and reports, can provide external information and context about the product. Advertising materials may highlight the benefits and intended use of the product, while advice from healthcare professionals, such as pharmacists and doctors, can offer personalised recommendations and address specific concerns. Together, these sources help users make well-informed decisions regarding the use of non-prescription medicinal products (Bustanji et al., 2024).

Pharmacists are crucial in advising consumers on the proper and safe use of medicinal products intended for self-medication. Given this vital role, it is essential that their training and professional practice thoroughly emphasise this responsibility. Incorporating comprehensive education on self-medication and effective communication into their training ensures that pharmacists are well-prepared to guide patients effectively. This focus enhances their ability to provide accurate information and support, ultimately contributing to safer and more informed use of non-prescription medicines (Zaidi et al., 2023).

The rapid advancement of technology, particularly through the internet and related communication systems, has created new opportunities for accessing information. This development may significantly enhance the dissemination of knowledge about medicinal products, including their characteristics and proper use in self-medication. However, the quality of information available online can vary widely (Ludovic et al., 2014).. It is important to recognise that access to this information is not equally available to everyone; disparities exist based on socioeconomic status, educational background, and geographical location. Well-designed labelling that is tailored to specific cultural contexts can help bridge these gaps. Nevertheless, such labelling should be carefully implemented to avoid restricting access to over-the-counter (OTC) products, ensuring that all individuals can benefit from these advancements in information access (Bhat et al., 2024).

1.3. Factors Influencing Self-Medication Practices

Factors that influence self-medication include age, level of education, lifestyle, family, society, race, availability and accessibility of drugs, the law, and level of exposure to advertisements (Ludovic et al., 2014; Pavyde et al., 2015). The appeal of self-medication is largely due to its inherent convenience, which plays a crucial role in encouraging individuals to manage minor

health issues independently. In a fast-paced world, the ease and accessibility of self-medication offer a compelling advantage. People are drawn to quick and readily available solutions that allow them to address health concerns without the need for a doctor's appointment. Moreover, self-medication is often more affordable than traditional medical care, as over-the-counter medications and home remedies can offer relief without the financial strain linked to prescription drugs and doctor visits. This combination of convenience and affordability makes self-medication an attractive option for many (Binu et al., 2023). The time-saving benefits of self-medication are clear, as it eliminates the need to schedule appointments, wait in clinics, and navigate the timelines of traditional healthcare systems. For minor ailments and familiar conditions, individuals often value the autonomy and immediacy that self-medication provides (Sunny et al., 2019). However, despite these advantages, it is important to recognise and address the potential drawbacks of this approach. Self-medication can sometimes lead to misuse or overuse of medications, potentially resulting in adverse effects or interactions with other treatments. Additionally, the reliance on self-medication may delay seeking professional medical advice when needed, which could lead to complications or worsening of underlying conditions. Balancing the convenience of self-medication with a mindful approach to its limitations is essential for maintaining overall health and safety (Abubakar et al., 2023).

In a study by Abasiubong et al., (2012) it was noted that patients opted to self-medicate from knowledge gained from either relatives or friends, healthcare professionals and social media. Karimy et al., (2019) noted that in the United States of America, 42% of the population have admitted to taking medicines without a physician’s prescription whereas in Indonesia, self-medication was reported to be 91%. The main factors that lead patients to self-medicate are sociocultural beliefs, lengthy wait times at the clinics, a relatively high cost of hospital care, prior experiences with the same symptoms being treated medically, the perception that an

illness is trivial, the inaccessibility of the clinics to the general public, the ease with which OTC medications can be obtained, poor drug regulatory practices, the urgency of the issue, hospital overcrowding, and the lack of essential medications (Oyediran et al, 2019). In the study by Baracaldo-Santamaría et al. (2022), the prevalence of self-medication varies significantly depending on the country and the population under investigation, ranging from 11.2% to 93.7%. The highest prevalence rates are observed in developing countries. The most commonly used medications in self-medication are antipyretics and analgesics (44.3%), followed by nonsteroidal anti-inflammatory drugs (36.4%) and antihistamines (8.5%).

A significant threat to public health is the rise of drug-resistant bacterial strains, which often results from the irrational use of antibiotics without proper medical supervision. Antibiotics play a crucial role in treating harmful bacterial infections, but they should only be used under the guidance of a healthcare professional. In certain pulpal and periapical conditions, systemic antibiotics can pose risks of adverse effects and may even be ineffective. Overuse and misuse of antibiotics can lead to the development of antibiotic-resistant bacteria and microbes, rendering these medications ineffective against such infections (Kavitha et al., 2022). Self-medication with various classes of antibiotics has been reported, with amoxicillin being the most commonly used, followed by macrolides, fluoroquinolones, cephalosporins, and metronidazole (Zeb et al, 2022). Fluoroquinolones and amoxicillin are particularly popular, likely due to their low cost, easy availability, and relatively mild side effects. These antibiotics are frequently prescribed, leading patients to turn to them again when they encounter similar symptoms in the future. However, this widespread and irrational use contributes to antibiotic resistance and treatment failures (Chacko et al., 2020).

In a study conducted by Waqar et al., (2023), it was found that found that the most frequently prescribed antibiotic was metronidazole. The study identified several conditions that led participants to self-medicate with antibiotics, including food poisoning (36.02%), dysentery, diarrhea, fever, cold, cough (28.24%), infections (12.97%), toothache and dental pain (9.22%), acne (4.32%), irritable bowel syndrome (3.46%), ear and throat pain (2.31%), asthma (1.73%), sinusitis (0.86%), and ringworm (1.15%). In contrast, a similar study conducted in Mongolia, the United Arab Emirates, and Nigeria found that penicillins, particularly ampicillin and amoxicillin, were more commonly used than metronidazole for self-medication across a variety of conditions (Tohan et al., 2024). In two separate research studies conducted by Grigoryan et al., (2006) and Lescure et al., (2018) the prevalence rates of antimicrobials being taken for self-medication purposes in Europe was found to be the highest in the Eastern region (Lithuania and Romania), followed by the Southern region (Spain, Italy and Malta). The lowest rates were found in the Northern and Western regions (Sweden and Netherlands). In a study by Sunny et al., (2019) the average prevalence of self-medication for antimicrobials among various countries, including countries in Asia and South America was reported to be 42%. In a seperate cross-sectional survey conducted in Pakistan, it was revealed that people are unaware of the risks associated with antibiotic resistance due to inadequate use of antibiotics (Abubakar et al., 2023). Similarly, the Center for Disease Control and Prevention (CDC)[6] estimated that over 2.8 million antibiotic-resistant infections occur annually with more than 35,000 people dying in the United States.

To combat this growing issue and preserve the effectiveness of these critical medications, it is crucial to promote responsible antibiotic use. This involves ensuring that antibiotics are only

[6] Center for Disease Control and Prevention (CDC). CDC (2024) About Antimicrobial Resistance[Internet] [cited 2024 Aug 12]. Available from: https://www.cdc.gov/antimicrobial-resistance/about/index.html.

used when necessary and under the guidance of healthcare professionals. By adhering to appropriate prescribing practices and encouraging patients to follow their treatment regimens precisely, one can help mitigate the spread of resistance and protect the future efficacy of antibiotics (Bhat et al., 2024). Another concern in self-medication practices is the misuse of non-steroidal anti-inflammatory drugs (NSAIDs). While NSAIDs are commonly used to relieve pain, their inappropriate use can lead to serious side effects, including nephrotoxicity and hepatotoxicity. Addressing these issues requires increased public awareness and education about the proper use of antibiotics and NSAIDs to prevent adverse health outcomes and combat drug resistance (Chacko et al., 2020).

Self-medication has increased globally and its prevelance is higher in developing countries (Sunny et al., 2019). In a study conducted by Rahimisadegh et al., (2022) it was reported that irrational drug use was around 87% in India , 86% in Brazil, 83% in Iran and 55% in Egypt. Whilst in a study conducted by Gupta and Chakraborty (2022), it was noted that countries in the developed world such as Germany, Switzerland, Australia and the USA reported a low prevalence of self-medication of 8%, 11%, 13% and 11%, respectively. In two research studies conducted by Ruiz (2010) and Gogazeh (2020), the most commonly used drugs for self-medication were antacids, analgesics, antibiotics, antipyretics, decongestants, cough suppresants and vitamins.

During the COVID-19 pandemic whilst most countries had to undergo lockdown, self-medication increased with one of the main reasons being the influence of social media providing misinformation about certain medications where tests of safety and efficacy had not yet been established (Makowska et al., 2020). The rise in self-medication during the COVID-19 pandemic may have been driven by improper self-care practices stemming from fears of

contracting the virus in healthcare settings, misinformation spread by the media regarding COVID-19 prevention and treatment, and other factors such as cultural beliefs, educational background, and ease of access to medications.(Barakat & Mohasseb, 2023). One of the main reasons resulting in patients self-medicating during the pandemic was that during the lockdown private doctor clinics were closed thus depriving patients from timely medical assistance and advice when needed (Choudhary et al., 2020). In developing countries such as India, it has been documented that self-medication with hydroxychloroquine and chloroquine was done to prevent COVID-19 infection. It was later declared by the US Food and Drug Administration (FDA) that it was unsafe to use hydroxychloroquine and chloroquine in mild-to-moderate COVID-19 patients on the basis of the therapeutic safety profile (Malik et al., 2020). Another example which was observed was that of ivermectin, sold as an OTC product mainly in Latin American countries to treat COVID-19. This resulted in the WHO providing several warnings to observe caution when self-medicating to treat COVID-19 (Malik et al., 2020). The self-medication trend has also been reported to have increased the worldwide number of google searches since the pandemic started. As a result, treating COVID-19 symptoms with the numerous prescription medicines that are available is a significant medical challenge due to the risks of adverse drug reactions (Quispe-Canari et al., 2021). In a study conducted after the pandemic by Kazemioula et al., (2022) it was noted that during the pandemic there was an increase in self-medication, mainly by college students which could have been attributed to their higher education level compared to the general population (Kazemioula et al., 2022).

1.4. Benefits and Risks of Self-Medication

When used responsibly, self-medication can be beneficial in conserving medical resources by allowing individuals to manage minor ailments independently. This approach can reduce the burden on healthcare facilities, lower costs, and save time by minimising the need for

professional consultations for minor illnesses. The WHO acknowledges that appropriate self-medication can be effective for treating acute conditions that do not require a doctor's intervention. However, self-medication also has potential downsides. Risks include adverse drug reactions, treatment failures, and the development of antimicrobial resistance in the case of irrational antibiotic use. Therefore, while self-medication can offer significant advantages when used correctly, it is essential to balance these benefits with careful attention to potential risks and ensure that it is done under appropriate guidance to avoid negative health outcomes (Tohan et al., 2024).

Responsible self-medication involves the use of non-prescription drugs that can be obtained OTC for conditions that can be easily self-diagnosed and are classified as minor. In order for self-medication to be responsible the medicinal product must be supported with information describing method of administration, possible side effects, monitoring parameters, warnings, possible interactions and duration of use (Ruiz, 2010).

Inappropriate self-medication refers to the use of prescription drugs without having a prescription, using drugs which were prescribed for previous ailments, sharing medications with family and friends and also using out-of-date drugs. Inappropriate drug use practices, include using the medication for a shorter duration than traditionally used, having an inadequate dosing and withdrawing treatment once the symptoms start to improve (Nepal & Bhatta, 2018). Adverse outcomes of improper self-medication include intoxication, bacterial resistance in case of antibiotics, drug dependence, and masking the signs of a severe diseases (Rahimisadegh et al., 2022).

The social and economic benefits of self-medication stem from its voluntary nature, as consumers choose it for conditions they deem manageable without the need for professional consultation. Individuals typically opt for self-medication when they experience symptoms or conditions that are bothersome enough to require treatment but not severe enough to warrant a doctor's visit. This approach allows them to address minor health issues efficiently and cost-effectively. Professional medical help is usually only sought if the condition does not improve, persists, or worsens despite self-medication efforts. Thus, self-medication offers a practical solution for managing minor health concerns while reserving medical consultations for more significant issues (Lescure et al., 2018). Self-medication has a number of benefits both on an individual and on a community level. On an individual level, self-medication could give patients an active role in taking care of their health, can increase self-resilience in preventing or relieving any minor conditions or symptoms, can help patients gain more education on specific health issues, can be more convenient for patients and can help economically since medical consultations are reduced (Vidyavati et al., 2016; Lei et al., 2018). On a community level, self-medication could benefit by lowering the cost of community funded health care programs, saving medical resources from being used up on minor conditions, reducing pressure on medical staff as there would be less patients needing treatment for minor conditions and increase the availability of health care for patients living in rural or remote areas (Alexa et al., 2014; Bennadi, 2014).

Self-medication carries several potential risks. Most notably, the average person typically lacks specialised knowledge of pharmacology, therapeutic principles, or the specific properties of the medication being used.Self-medication is associated with a number of risks, both on an individual and community level. On a personal level, self-medication may lead to patients receiving the wrong diagnosis, selecting the wrong course of treatment, failing to perceive

unique pharmacological hazards, experiencing uncommon but severe side effects, failing to notice contraindications, interactions, warnings, and precautions (Chako et al., 2020). Patients might fail to report the current self-medication to their doctors resulting in either taking double the dose of the medication or also having clinically significant interactions. Using the wrong route of administration, inadequate or excessive dosing, prolonged use, the risk of dependence or abuse, food-drug interactions, improper storage conditions, or using medications past their recommended shelf life are some other risks related to self-medication. On a community level, inappropriate self-medication practices might increase drug-related diseases and result in needless public spending (Vidyavati et al., 2016; Noone & Blanchette, 2018; Fekadu et al., 2020). When patients self-medicate using for example antibiotics, the phenomenon of antimicrobial resistance would ensure (Das et al., 2020).

Accurately diagnosing one's own condition can be challenging, as symptoms of seemingly minor health issues may overlap with those of more serious illnesses. Irrational use of medications can lead to adverse effects and delay the diagnosis of underlying health problems (Dubory et al., 2024). To ensure responsible self-medication, individuals must be well-informed about the medications they plan to use. This involves understanding the primary constituents of the medications, recommended dosages, potential side effects, and contraindications. Seeking education and professional advice on appropriate usage is essential for making informed decisions. It is crucial to obtain trustworthy information from reliable sources, healthcare professionals or pharmacists. Effective communication with healthcare professionals plays a vital role in the safe and effective use of medications. Individuals should not hesitate to consult these experts when needed. By adhering to these practices, individuals can practice self-medication responsibly and minimise potential risks (Tohan et al., 2024).

It is crucial to understand that many risks associated with self-medication are not exclusive to this practice; they can also occur in prescription scenarios, especially if a patient consults multiple physicians or lacks proper counseling during therapy. These risks, such as misdiagnosis, drug interactions, and medication errors can arise in both self-medication and prescription settings. When choosing medicinal products, the goal should be to maximise the benefits while minimising the associated risks. This approach ensures that self-medication can be a safe and effective option for managing minor health issues while reducing potential adverse outcomes (Bustanji et al., 2024).

1.5. Mitigating Risks of Self-Medication

Self-medication serves as a significant alternative to formal medical treatment, yet it is essential that decisions regarding OTC medications are made in a safe and informed manner to optimise benefits while minimising potential risks. Educational initiatives targeted at both healthcare professionals and the broader community can play a crucial role in addressing the challenges associated with self-medication. These initiatives can include raising awareness about the appropriate use of medications, emphasising the importance of consulting healthcare providers before self-administering treatments, and promoting responsible medication practices (Abubakar et al., 2023). Expanding access to high-quality public healthcare services is pivotal in supporting safe self-medication practices. Ensuring that individuals have access to accurate information, proper diagnosis, and suitable treatment options can significantly reduce the risks associated with self-medication (Bustanji et al., 2024).

Lowering the prevalence of infectious diseases is another critical factor in promoting safe self-medication. By reducing the incidence of illnesses that prompt individuals to self-medicate,

public health efforts can indirectly contribute to minimising the inappropriate use of medications and associated risks (Dubory et al,. 2024).

Central to the promotion of safe self-medication is the proactive involvement of healthcare professionals, particularly pharmacists. Pharmacists, being the primary point of contact for many patients seeking over-the-counter medications, play a crucial role in ensuring that individuals receive adequate information, therapeutic advice, and education on the rational use of medicines. By empowering patients with knowledge about medication benefits, risks, and proper usage guidelines, pharmacists can significantly enhance patient safety and promote responsible self-medication practices (Bennadi, 2014; Vidyavati et al., 2016).

1.6. Aims and Objectives

The aims were:

i. To assess the prevalence and associated risks of self-medication practices from the perspectives of customers, medical practitioners, and pharmacists
ii. To develop strategies to mitigate these risks and promote safer self-medication practices.

To achieve these aims, several specific objectives were pursued:

1. Disseminating questionnaires among patients in community pharmacies and through social media to assess the prevalence and motivations behind self-medication.
2. Administering questionnaires to medical practitioners and pharmacists to evaluate their perceptions of the risks associated with self-medication.
3. Developing an informative leaflet designed to educate patients about the potential risks of self-medication.

Chapter 2: Methodology

This chapter aims to comprehensively discuss the methodology undertaken in this study and evaluate its efficacy in achieving the research aims and objectives. The objectives of this research are outlined as follows:

1. Evaluate the perceptions of both the general population and healthcare professionals regarding the risks associated with self-medication.
2. Develop and validate an informative leaflet designed to educate the general public about the risks of self-medication and to encourage safer practices.

2.1. Study Design and Participants

Two distinct questionnaires were developed for this study: one aimed at the Maltese general public to gauge their awareness of the risks associated with self-medication, and another targeting pharmacists and physicians to explore their perspectives on the prevalence of self-medication. Ethics approval was sought and granted (Appendix A). The questionnaires serve as integral tools in gathering comprehensive insights into public and healthcare professional perceptions, thereby laying a solid foundation for analysing and addressing the complexities surrounding self-medication practices in Malta.

2.2. Questionnaire Development

A questionnaire, intended for the general public (Quest GenPub), titled 'Risks of Self Medication` was developed in both English and Maltese. Questions were adapted from previously published literature (Grigoryan et al, 2006; Alghanim, 2011; Bennadi, 2014; Lei et al, 2018; Noone & Blanchette, 2018; Fekadu, 2020; Mohammed et al, 2021). The questionnaire sought to determine the advantages and disadvantages of self-medication from the general public's perspective. It consisted of twenty-three questions, divided into four sections,

"Demographics" (Section I), "Patient Health Status" (Section II), "Self-Medication Practices" (Section III) and "Self-Medication during the Covid-19 Pandemic" (Section IV). The final version of the questionnaire consisted of multiple choice questions, one answer only questions and Likert-type statements (Appendix B).

Section A: Demographics

This section consisted of eight closed-ended questions designed to gather essential demographic information from respondents, such as gender, age, nationality, locality of residence, employment status, marital status, educational background, and whether any family members were healthcare professionals. These details provided a socio-demographic profile essential for contextualizing responses.

Section B: Patient Health Status

This section consisted of five questions, three of which where yes or no questions and the other two where Likert type statements. These questions were asked to gain a basic understaning of the patients' health status and whether or not respondents have any healthcare professionals with whom they trust and confide in.

Section C: Self-Medication Practices

The core of the questionnaire, Section C consisted of ten multiple-choice questions exploring various dimensions of self-medication practices among respondents. Key topics included:

- Familiarity with self-medication concepts
- Incidence of self-medication
- Reasons prompting self-medication
- Sources of medications for self-treatment

- Information sources consulted before self-medicating
- Perceived risks associated with self-medication
- Common health conditions for which respondents self-medicate
- Types of medications respondents are comfortable using during self-medication

For respondents who had never self-medicated, the questionnaire probed reasons behind this decision, providing additional qualitative insights.

Section D: Self-Medication during the Covid-19 Pandemic

This section featured three closed-ended questions aimed at assessing any changes in self-medication practices among respondents during the COVID-19 pandemic. Questions focused on whether the pandemic influenced self-medication behaviours, reasons for any changes, and the frequency of self-medication during this period.

A second questionnaire titled ‘Doctors and Pharmacists Questionnaire for Risks of Self-Medication’ (Quest HCP) was developed. The questionnaire sought to determine the prevalence of self-medication from the perspective of medical practitionaires and pharmacists. It consisted of eight questions and two sections, "Demographics” (Section I) and "Self-Medication Practices” (Section II) (Appendix C).

Section A: Demographics

This section included two closed-ended questions aimed at gathering demographic information such as gender and years of professional experience. These details contextualised responses within the professional backgrounds of participating healthcare providers.

Section B: Self-Medication Practices

Comprising five multiple-choice questions, Section B aimed to elucidate professional perspectives on various aspects of patient self-medication:

- Frequency of patient consultation before self-medication
- Healthcare professionals' perceptions of the success of self-medication
- Reasons identified by professionals for patient self-medication
- Common health complications for which patients opt to self-medicate
- Types of medications patients typically self-medicate with, distinguishing between OTC and prescription-only medicines (POM)

Back-to-back translation was used for the general public questionnaire, with an impartial participant translating the Maltese version into English. The translated English version was then carefully compared to the original English questionnaire to ensure consistency and accuracy in the questions' context and meaning. This thorough process was intended to maintain accuracy and ensure that respondents from both language groups could understand and answer the questionnaires similarly.

2.3. Questionnaire Validation and Reliability Testing

Both questionnaires underwent validation for relevance, comprehensiveness, and clarity using a Likert scale ranging from 1 to 5, where 1 indicated the lowest score. The General Public's questionnaire was reviewed by two doctors, two pharmacists, and four laypersons, while the Healthcare Professional questionnaire was evaluated by two doctors and two pharmacists. Each data point included an open-ended question to gather additional recommendations from validation panel members.

To ensure a test-retest reliability of the questionnaires, a reliability test was conducted. The English version of the General Public questionnaire was initially distributed to six participants, and the Healthcare Professional questionnaire to two doctors and two pharmacists, with results documented. After two weeks, the questionnaires were re-administered to the same individuals, and their responses were again documented. Statistical tests, including Cronbach's alpha for internal consistency and Cohen's kappa for test-retest reliability, were performed to assess the questionnaires' reliability. The study was ethically approved and registered with the Faculty Research ethics board under the ID MED-2022-00258.

2.4. Questionnaire Dissemination

The final versions of the Quest GenPub and Quest HCP were developed and administered online using Google Docs. Prior to full deployment, pilot tests were conducted to ensure the clarity and effectiveness of both questionnaires. The Quest GenPub underwent pilot testing with six members of the public, while the Quest HCP was tested with two pharmacists and two doctors.

Following successful pilot testing, the Quest GenPub was distributed via social media and through a community pharmacy to target an older age demographic effectively. Concurrently, the Quest HCP was disseminated via social media and electronically, utilising convenience sampling due to its efficiency in cost and time for gathering completed surveys.

2.5. Developing the Information Leaflet

The leaflet commenced with an introduction providing a concise overview of the questionaires objectives and methodology highlighting the risks and benefits of self medication. It subsequently delves into an examination of the identified risks associated with self-medication,

drawing directly from the empirical data collected. The document also features practical recommendations on safe medication practices, aiming to equip readers with essential knowledge for making informed healthcare decisions. Visual aids such infographics were strategically incorporated to enhance the clarity and accessibility of the guidelines presented (Appendix D).

The information sheet was titled "A Guide for Self-Medication" aiming to raise awareness about the dangers associated with self-medication. An introduction follows, providing a brief overview of the leaflet's purpose and the importance of understanding the risks involved in self-medicating without professional guidance. The second part of the information leaflet delves into the specific risks identified through survey data, presenting a concise list supported by empirical evidence. The third part of the information leaflet focuses on safe practices, offering practical tips on how individuals can responsibly manage their health through safe medication use. Through this structured layout, the leaflet aims to empower readers with knowledge and guidance to make informed decisions regarding their health and medication use. Once the leaflet was ready to be disseminated back-to-back translation was employed, involving a translation from the Maltese version into English. Subsequently, the translated English version was compared to the original English questionnaire to ensure consistency and fidelity in the context and meaning of the questions.

The educational leaflet on the risks of self-medication was aimed to be disseminated using a dual strategy of physical and digital distribution. Physically, the leaflets were strategically placed in clinics, pharmacies and community centers, ensuring widespread accessibility to the target audience across various community touchpoints. Simultaneously, digitally, the leaflet will be shared through social media platforms, healthcare-related websites, and email

newsletters. This approach aims to maximise outreach and engagement, reaching individuals both offline and online, thereby promoting awareness about safe medication practices and the risks associated with self-medication within the community.

2.6.Statistical Analysis

The data collected from completed questionnaires was coded and analysed using SPSS® Version 27. Initial analysis involved descriptive statistics, employing the frequencies function to determine counts and percentages for categorical responses, as well as calculating mean, median, and mode for continuous variables. Cross-Tabulation was utilised to explore relationships between different categorical variables. Additionally, Chi-Square tests were employed to compare observed data with expected outcomes, determining whether any differences are statistically significant and indicative of a relationship between variables using a p-value of 0.05.

Chapter 3: Results

This chapter presents a comprehensive analysis of the results derived from both quantitative and qualitative research conducted in the study. The chapter is organised as follows:

1. Validation and Reliability Testing of the Research Instrument

This section analyses the results obtained from the validation and reliability testing of the research instruments used in the study. It explores the measures taken to ensure the accuracy, consistency, and robustness of the instruments employed.

2. Results from the 'Risks of Self Medication' Research Instrument

This section delves into the findings obtained from the responses to the research instrument titled 'Risks of Self Medication'. It examines the perspectives, attitudes, and practices related to self-medication among the general public, drawing insights from both quantitative data and qualitative feedback.

3. Results from the 'Doctors and Pharmacists Questionnaire for Risks of Self-Medication'

Here, the chapter presents the outcomes derived from responses to the research instrument designed specifically for medical practitioners and pharmacists. It highlights their views on self-medication practices, their roles in advising patients, and their perceptions of risks associated with self-medication.

4. Outcomes from the Validation Panel prior to Dissemination of the Information Sheet

This section discusses the feedback and outcomes gathered from the validation panel that reviewed the content and effectiveness of the information leaflet on self-medication. It evaluates the panel's insights and recommendations aimed at refining and improving the leaflet's clarity, relevance, and impact.

3.1. Validation and Reliability Testing

When developing a research instrument, such as a questionnaire, ensuring its validity and reliability is crucial to establish its effectiveness and accuracy (Tavakol & Dennick, 2011). The

validation process for both questionnaires in this study yielded positive feedback, indicating that they were clear, well-constructed, and fit for purpose. However, several recommendations were made to enhance their overall quality and usability.

For the ‘GenPub’ questionnaire, which targets the general public, the validation panel suggested several modifications including ammending the layout and language of the questionnaire by improving the questionnaire’s layout and simplifying the language to enhance readability and comprehension. A ‘Please Specify’ option was also recommended in multiple questions by the validation panel to allow respondents to provide answers that may not have been initially considered. This change ensures that the questionnaire captures a broader range of responses. In the patient health status section the layout was refined based on feedback, ensuring it was more organised and easier to navigate. Inorder to effectively gauge respondents' perceptions of health status and satisfaction with local healthcare services, the panel recommended using Likert-type statements. This format allows for a nuanced rating of various options, providing more detailed insights.

For the ‘HCP’ questionnaire, aimed at healthcare professionals, the panel's recommendations focused on optimising its length and relevance by asking more concise questions, taking approximately five to ten minutes to complete. This recommendation aims to increase the response rate by reducing the time commitment required from busy healthcare professionals. The validation panel also recommended to prioritise certain questions by identifying the most critical questions that would yield the most valuable data. This prioritisation ensured that the final questionnaire focused on gathering essential information relevant to the study's objectives.

All recommended changes were carefully implemented to enhance the questionnaires' clarity, effectiveness, and respondent engagement. The modifications ensured that the instruments are not only valid and reliable but also user-friendly and capable of capturing comprehensive data. These enhancements are vital for obtaining accurate and actionable insights into the risks and practices of self-medication among different populations. By incorporating these thoughtful adjustments based on expert feedback, the research instruments were significantly improved, ensuring their robustness and efficacy in collecting meaningful data for the study.

Cronbach's alpha was calculated to assess the internal consistency of the research instrument. Evaluating internal consistency is essential before using a research instrument, as it helps ensure the validity of the tool and indicates the extent of measurement error in the test. Results are reported on a scale from 0 to 1, with higher values indicating better consistency. A low Cronbach's alpha might suggest a limited number of questions or poor inter-relatedness among them (Tavakol & Dennick, 2011). In this case, a Cronbach's alpha value of 0.92 was obtained, demonstrating a high level of internal consistency and indicating that the items on the questionnaire are strongly related to the same underlying theme.

Cohen's kappa was employed to assess intrarater reliability, a robust statistical tool that quantifies the level of agreement between responses. The value for Cohen's kappa ranges from -1 to +1, where 0 signifies agreement equivalent to chance, and +1 indicates perfect agreement (McHugh, 2012). In this study, a mean value of 0.82 was achieved, reflecting near-perfect agreement. This high value was anticipated, given that the questionnaire focused on the respondents' personal experiences with self-medication rather than subjective perceptions. Consequently, participants' answers were expected to remain consistent between their initial and follow-up responses, recorded two weeks apart. Therefore, the obtained kappa value was

considered acceptable and suitable for the study's objectives, underscoring the reliability of the responses collected.

3.2. Demographic Data

The Quest GenPub questionnaire included 261 participants, providing a robust dataset for analysing self-medication practices. A notable majority of respondents were female, comprising 76% (n=185) of the participants. The survey captured a diverse age range. The largest age group was individuals aged between 40 to 49 years, representing 33% (n=86) of respondents. Additionally, 24% (n=63) of participants were aged between 18 to 29 years. Half of the respondents (50%, n=131) had achieved tertiary education.

The Quest HCP questionnaire gathered responses from 66 healthcare professionals, offering valuable insights into their perspectives on self-medication. A slight majority of the respondents were female, comprising 58% (n=38) of the participants. The respondents were nearly evenly split between doctors and pharmacists, with doctors making up 55% (n=36) and pharmacists constituting 45% (n=30) of the participants. A significant portion of the participants, 32% (n=21), had between 1-5 years of work experience.

3.3. Patient Health Status

The Quest GenPub questionaire yielded insightful data about participants' health conditions, their relationships with healthcare providers, and their perceptions of health and local healthcare services. A majority of participants, 71% (n=185), reported not suffering from any health conditions. Eighty-seven percent (n=227) of participants reported having a constant family doctor they go to for advice, while 74% (n=193) have a pharmacist they feel comfortable consulting for medical advice. Forty-eight percent (n=126) of respondents rated their health

status as 'Good.' Whilst Forty-five percent (n=118) of respondents expressed satisfaction with the services provided by local healthcare.

3.4. Self-Medication Practices

Eighty-five percent of participants (n=222) in the Quest GenPub reported that they understand the meaning of self-medication. A significant proportion, seventy-seven percent (n=201), indicated that they have self-medicated at some point in their lives. The primary reasons for self-medication included perceiving the illness as minor (81%, n=163), lack of time to attend healthcare facilities (23%, n=46), and limited access to medical services (18%, n=36) (Figure 3.1).

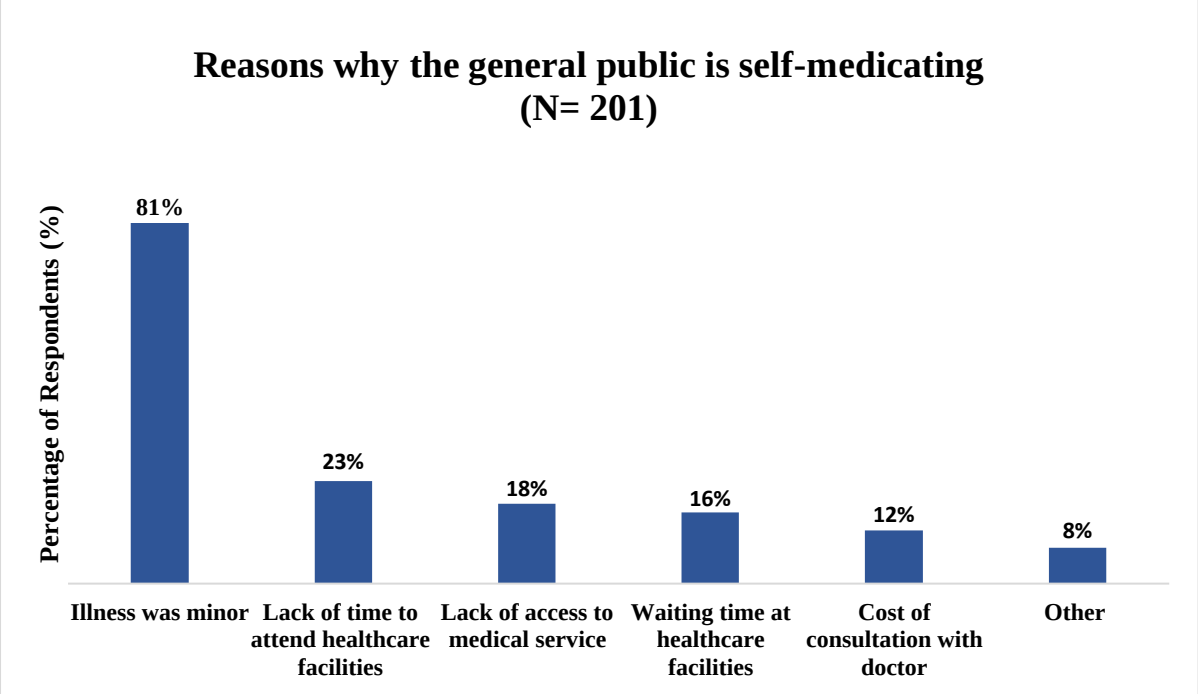

Figure 3.1. Reasons why the general public is self-medicating

The remaining 23% (n=60) of participants who have not engaged in self-medication cited several reasons for their decision. The primary reason was discomfort with taking medicines without professional advice, as reported by 83% (n=50) of this group. Additionally, 35%

(n=21) expressed concerns about the risks associated with self-medication, and 15% (n=9) indicated they were unable to link specific medicines to their symptoms.

Sixty-one percent of participants (n=159) obtain medications for self-medication from a community pharmacy, while 25% (n=65) use leftover prescription medication. Additionally, fifty-six percent of participants (n=147) rely on previous prescriptions for guidance when self-medicating, and 26% (n=68) seek information from relatives and friends. Fifty-three percent (n=138) are aware of other patients who practice self-medication.

The primary conditions for which individuals opt to self-medicate include cough and common cold (91%, n=183), menstrual pain (83%, n=167), and headache (74%, n=149) (Figure 3.2). The most commonly used medications for self-medication are cough syrups (82%, n=165), analgesics (74%, n=149), and oral rehydration salts (47%, n=94) (Figure 3.3).

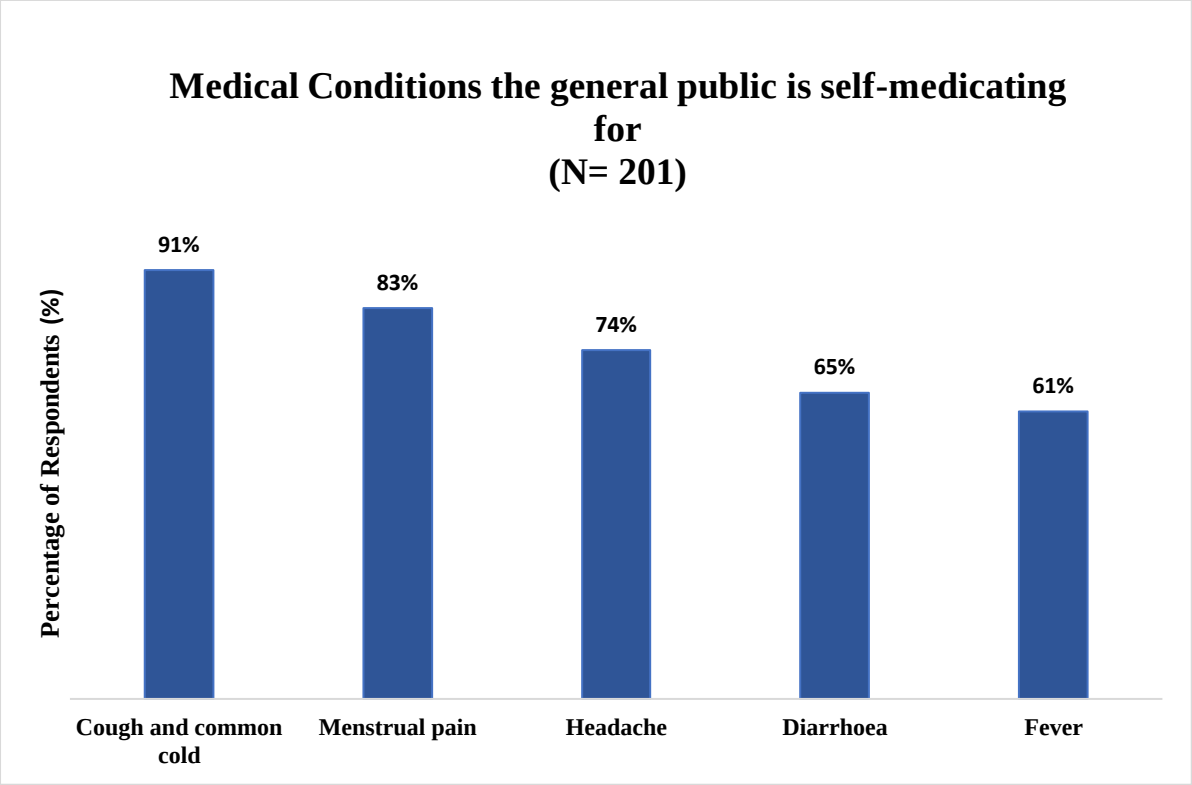

Figure 3.2. Medical conditions the general public is self-medicating for

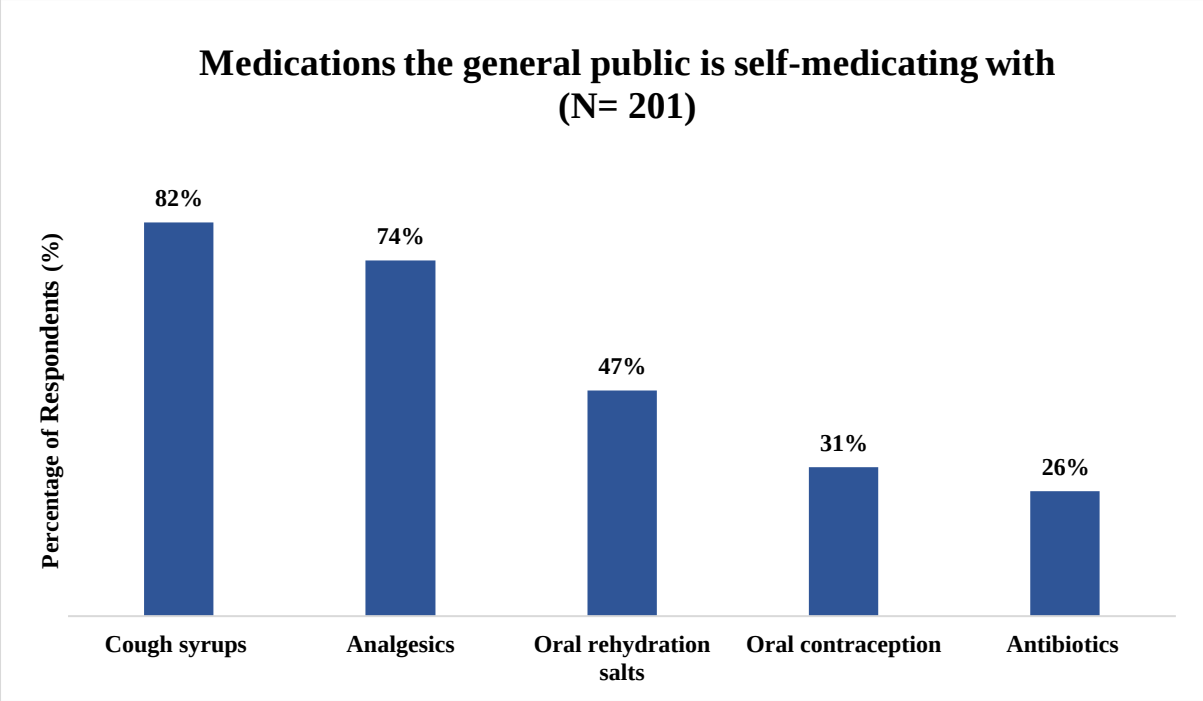

Figure 3.3. Medications the general public is self-medicating with

Participants identified several risks associated with self-medication, including incorrect diagnosis (56%, n=146), incorrect choice of treatment (54%, n=141), and inadequate or excessive dosing (39%, n=102) (Figure 3.4).

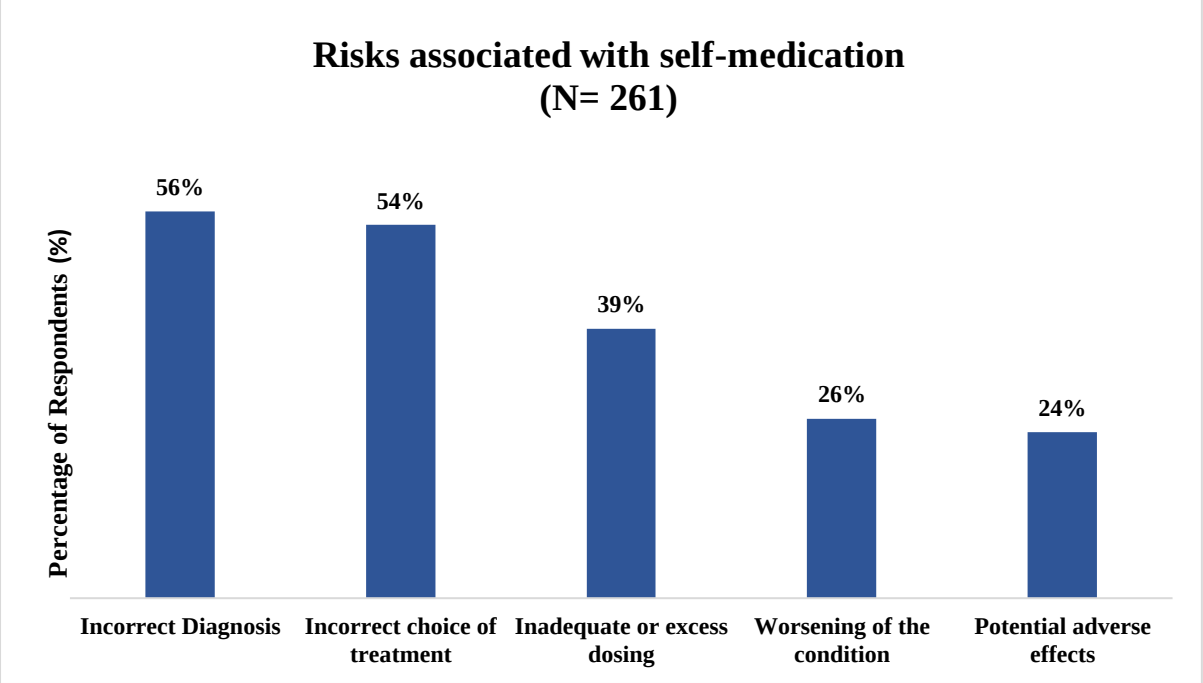

Figure 3.4. Risks associated with Self-Medication

In the Quest HCP survey, eighty-nine percent (n=59) of healthcare professionals reported that their patients engage in self-medication before seeking professional help. Half of the doctors and pharmacists surveyed (50%) believe that self-medication is not an unsuccessful practice, indicating a nuanced perspective on its role in healthcare management.

Healthcare professionals have identified several primary reasons why patients choose to self-medicate, as illustrated in Figure 3.5. Seventy-four percent of respondents (n=49) noted that patients often self-medicate for acute minor conditions that they perceive as manageable without professional intervention. Seventy-three percent of respondents (n=48) highlighted the inconvenience of long waiting times at healthcare facilities as a key factor influencing patients' decisions to self-medicate. Fifty-nine percent of respondents (n=39) pointed out that the financial burden associated with the cost of consultations with doctors also plays a crucial role in motivating patients to opt for self-medication.

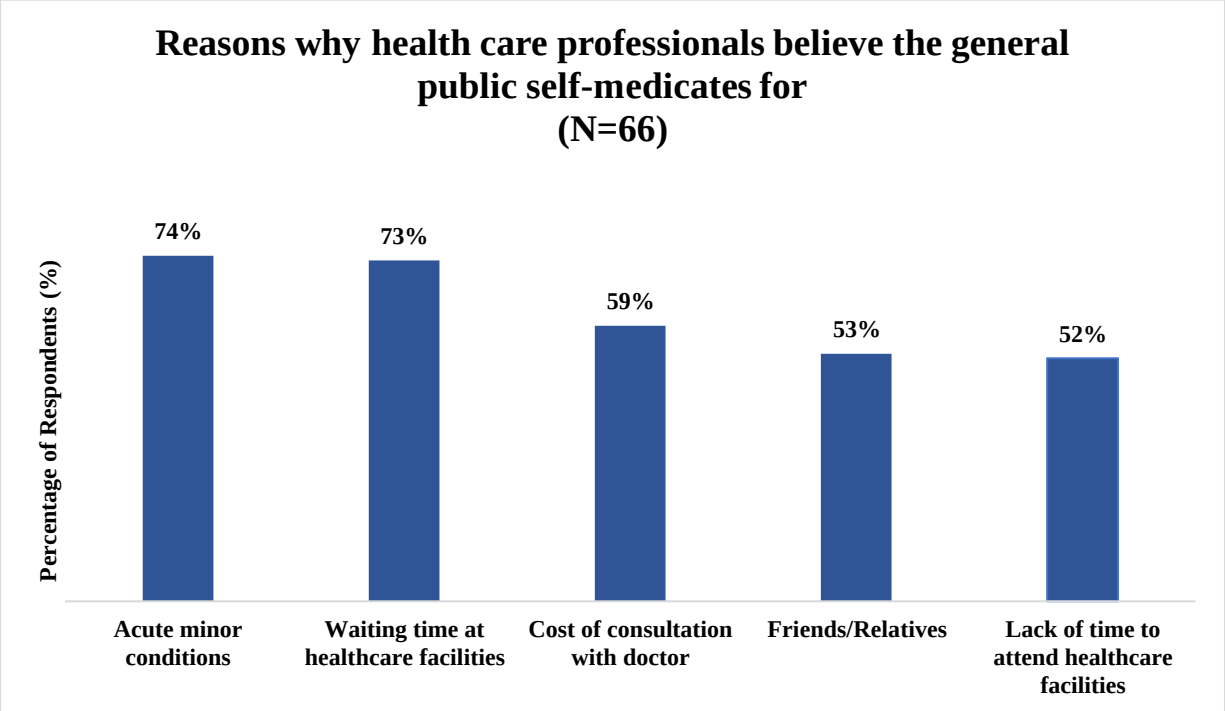

Figure 3.5. Reasons why health care professionals believe the general public self-medicates

According to healthcare professionals, certain medical problems commonly lead patients to self-medicate, as shown in Figure 3.6. Cough and the common cold were identified by 74% of respondents (n=49) as frequent reasons for patients opting to self-medicate, reflecting the prevalence of self-care for respiratory ailments. Similarly, 74% of healthcare professionals (n=49) noted that menstrual pain is another condition where patients often resort to self-medication. Seventy-one percent of respondents (n=47) mentioned headaches as a prevalent reason for patients choosing to manage their symptoms independently.

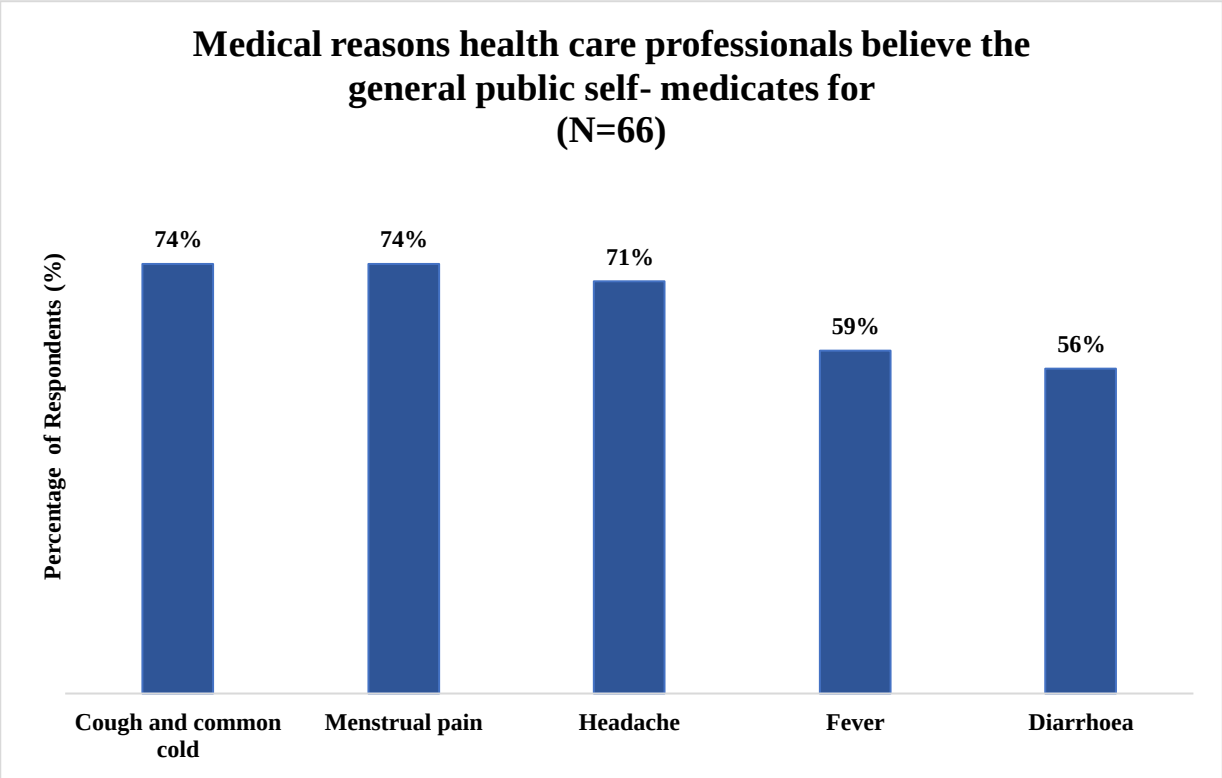

Figure 3.6. Medical reasons health care professionals believe the general public self-medicates for

Healthcare professionals have observed that patients commonly use specific types of medications for self-medication, as highlighted in Figure 3.7. Analgesics, were identified by 76% of respondents (n=50) as the most frequently used form of self-medication. Sixty-four percent of healthcare professionals (n=42) noted that cough syrups are popular among patients

for independently managing respiratory symptoms. Sixty-one percent of respondents (n=40) pointed out that antacids are often self-administered by patients to address digestive issues.

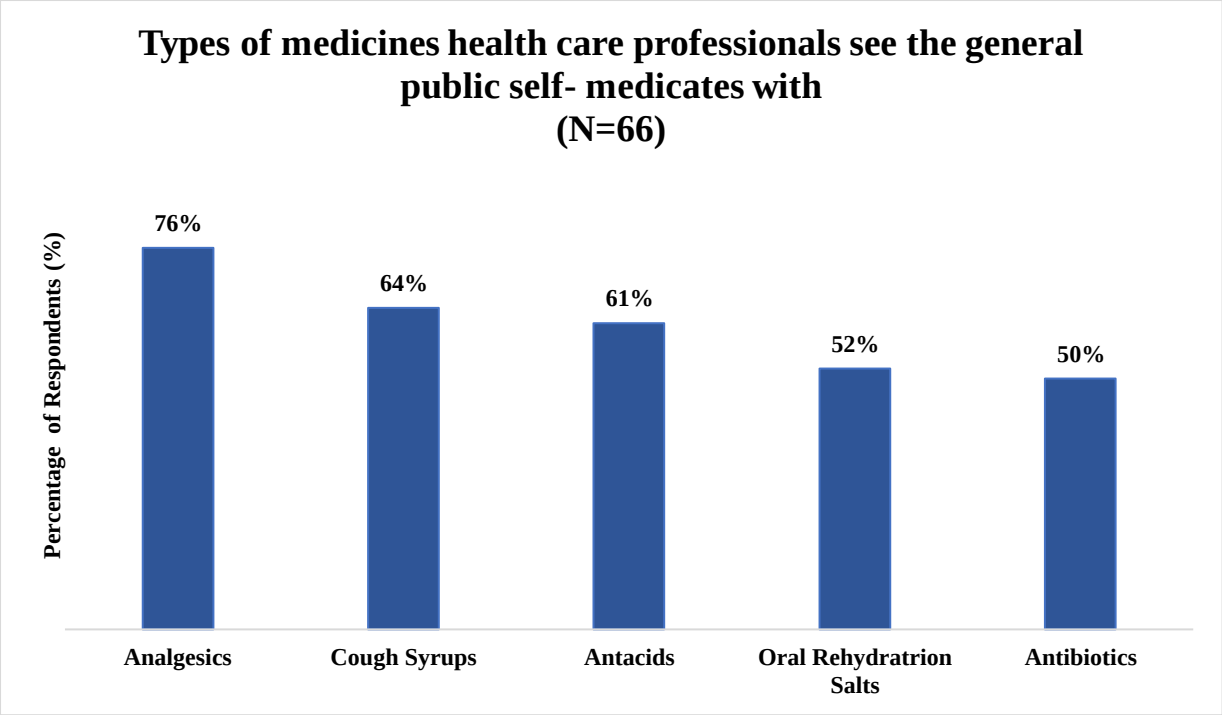

Figure 3.7 Types of medicines health care professionals see the general public self-medicating with

Sixty-five percent (n=43) of participants in the questionnaire believe that self-medication predominantly involves over-the-counter products, highlighting the accessibility and convenience of non-prescription medications in managing common health issues.

3.5. Self-Medication during the Covid-19 Pandemic

Sixty-eight percent (n=177) of the Quest GenPub participants do not attribute their self-medication practices to the Covid-19 pandemic. However, the remaining 32% (n=84) believe that the pandemic influenced their decision to self-medicate. The main reasons cited include prevention from Covid-19 infection (57%, n=48), being unable to leave the house (56%, n=47), and lack of access to medical care during the pandemic (44%, n=37) (Figure 3.8).

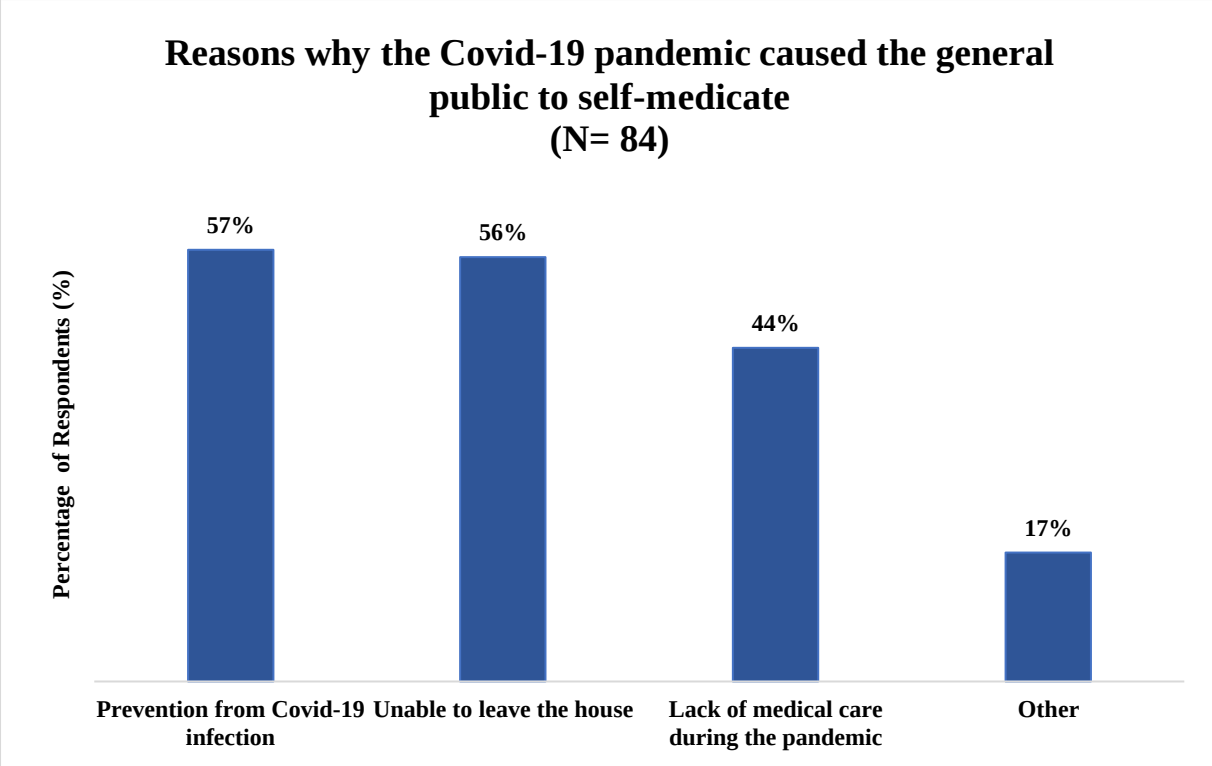

Figure 3.8. Reasons why the Covid-19 pandemic caused the general public to self-medicate

During the pandemic frequency of self-medication more than half of those who attributed their self-medication practices to the pandemic reported doing so between two to five times since the beginning of the Covid-19 outbreak. This suggests that self-medication became a relatively frequent practice during this period.

3.6.Validation of Information Leaflet

When developing the information leaflet, ensuring its validity is crucial to establish its effectiveness and accuracy. The validation process for the information leaflet in this study yielded positive feedback, indicating that it was clear, well-constructed, and fit for purpose. However, several recommendations were made to enhance the overall quality and usability. By implementing these recommendations, the information leaflet can be refined to effectively convey important messages about self-medication practices.

Chapter 4: Discussion

4.1. Assessment of Prevalence and Risks of Self-Medication

The study utilised questionnaires distributed to the (general public) and healthcare professionals (doctors and pharmacists). These questionnaires were structured to gather quantitative data on the frequency of self-medication, common reasons for self-medication, types of medications used, and perceived risks associated with self-medication. By using the questionnaires the participants were asked specific questions related to their self-medication behaviours, including the types of conditions for which they self-medicate, sources of medications, and their awareness of potential risks such as incorrect dosage or adverse interactions (Loni et al., 2023). Data collected from questionnaires was analysed to determine the prevalence rates among different demographic groups and to identify common patterns and reasons behind self-medication practices. Statistical analysis techniques such as frequencies, percentages, and possibly inferential statistics were employed to interpret the findings. An information leaflet was then designed to effectively inform the general public about the risks associated with self-medication and encourage safer practices. It synthesises comprehensive data gathered from the study, turining it into accessible language and clear visuals. The leaflet aims to empower individuals with essential knowledge on recognising potential dangers, understanding safe usage guidelines, and consulting healthcare professionals for personalised advice. By fostering awareness and responsible decision-making, the leaflet seeks to mitigate risks associated with self-medication, ensuring better health outcomes for all (Bhat et al., 2024).

By empowering individuals with accurate information and resources, ensuring the availability of professional guidance, and fostering a supportive healthcare infrastructure, one can support responsible self-care (Tohan et al., 2024). This holistic strategy not only enhances individual health outcomes but also strengthens overall public health, contributing to a safer and healthier

society. Implementing these comprehensive measures will pave the way for a more informed and conscientious approach to self-medication, benefiting both individuals and the broader community (Rusu et al., 2022). Improving the quality of evidence on community self-medication practices requires the development and validation of robust data collection strategies. This involves implementing methodologies that capture comprehensive and reliable data on self-medication behaviors, attitudes, and outcomes among diverse populations. Establishing such strategies is essential for informing evidence-based policies and interventions aimed at promoting safer self-medication practices (Bhat et al., 2024). Comprehensively understanding the behaviours and motivations behind self-medication is essential for devising effective strategies to promote safe practices and mitigate associated risks. Addressing this issue requires a multifaceted approach encompassing targeted education for healthcare professionals and the public, improved access to quality healthcare, stringent regulatory measures, enhanced pharmacist involvement, and robust public health interventions. These efforts aim to foster a culture of responsible self-medication, ultimately leading to better health outcomes and enhanced public safety (Rathod et al., 2023).

4.2. Demographics Affecting Self-Medication Practices

Patient demographics in the general public questionnaire show that these attributes may have had an effect on slef-medication practices. The gender imbalance suggests that women are more engaged in self-medication practices or are more willing to participate in health-related questionnaires. This demographic trend may reflect women's roles in household health management and their heightened concern for personal health issues. The predominance of female respondents indicates a potential gender-specific trend in self-medication. Women might be more proactive in managing health issues through over-the-counter solutions, highlighting the need for gender-sensitive health education and self-medication guidelines.

Age distribution ensures that the survey results reflect a wide spectrum of self-medication behaviors across different life stages. The significant representation of middle-aged individuals suggests that this group may be particularly active in self-medication, possibly due to managing chronic conditions or preventive health measures. Younger respondents likely focus on acute ailments or lifestyle-related health issues. Tailoring health interventions to these age-specific needs can improve the effectiveness of self-medication practices. The level of educational attainment implies that a substantial portion of the participants has better health literacy, which can significantly influence their self-medication practices. The educational background of respondents suggests that they are likely to make more informed decisions regarding self-medication. Educated individuals may have greater access to reliable health information and a better understanding of the potential risks and benefits associated with over-the-counter medications. This underscores the importance of providing accurate and comprehensive information to support safe self-medication practices among educated populations. These characteristics provide a context for interpreting the survey results, suggesting gender-specific trends, age-related health concerns, and informed self-medication practices. Understanding these demographic influences is crucial for developing targeted educational initiatives and policies to promote safe and effective self-medication among different segments of the population.

In the health care professionals questionnaire, the demographics section shows that the gender distribution aligns with broader trends in the healthcare profession, where women often represent a significant proportion of the workforce, particularly in roles such as nursing and pharmacy. The predominance of female respondents may reflect the increasing feminization of healthcare professions. Female healthcare providers often engage closely with patients, offering empathetic and comprehensive care, which may influence their perspectives on self-

medication. This demographic trend suggests that educational initiatives and policy decisions should consider gender-specific approaches to leverage the strengths of female healthcare professionals in promoting safe self-medication practices. This balance ensures a comprehensive view of self-medication from both prescribing and dispensing perspectives. The balanced representation of doctors and pharmacists provides a well-rounded understanding of the self-medication landscape. Doctors, who diagnose and prescribe treatments, can offer insights into the clinical appropriateness and potential risks of self-medication. Pharmacists, on the other hand, are pivotal in guiding patients on the safe use of over-the-counter medications, highlighting the importance of their role in patient education and medication management. Collaborative efforts between these two groups are essential for developing effective strategies to enhance patient safety in self-medication. This indicates that a considerable number of respondents are relatively early in their professional careers, bringing fresh perspectives and recent training into the survey responses. The presence of many early-career professionals suggests that contemporary educational training and current practices heavily influence the survey results. These professionals are likely up-to-date with the latest guidelines and innovations in patient care, including the safe use of non-prescription medications. Their input is crucial for understanding how recent educational efforts and early career experiences shape attitudes and practices regarding self-medication. Moreover, integrating feedback from this group can help in designing ongoing professional development programs that emphasise the importance of safe self-medication practices.

4.3. Health Status Affecting Self-Medication Practices

When analysing the patient health status in the general public questionnaire it was noted that the high percentage of individuals without chronic health conditions suggests that many respondents might rely on self-medication for minor ailments due to their generally good

health. This demographic is likely to have less frequent interactions with healthcare providers, making their understanding of safe self-medication practices crucial. Educational campaigns targeting this group can focus on the appropriate use of over-the-counter medications to prevent misuse and potential health risks. Also the strong relationships participants have with their family doctors and pharmacists indicate a robust support system for medical advice. These trusted relationships are vital for effective healthcare delivery, including guidance on self-medication. The high percentage of participants consulting pharmacists underscores the important role pharmacists play in patient education and medication management. Initiatives to enhance these relationships can further promote responsible self-medication practices and improve overall health outcomes. The nearly half of respondents perceiving their health as 'Good' reflects a positive self-assessment of well-being among the participants. This perception may influence their self-medication behaviors, as individuals who feel generally healthy might be more inclined to manage minor ailments on their own. Public health strategies can leverage this positive health perception to encourage preventive health measures and responsible self-medication. The level of satisfaction with local healthcare services is relatively high, indicating that many participants feel their healthcare needs are adequately met. However, there is room for improvement to increase this satisfaction rate. Understanding the specific areas where improvements are needed, such as accessibility, quality of care, or communication, can help tailor interventions to enhance patient satisfaction and trust in the healthcare system. Increased satisfaction can also lead to better adherence to medical advice and appropriate use of healthcare services, including self-medication guidance.

4.4. Understanding Self-Medication Practices

Self-medication is indeed widespread and influenced by various factors. Understanding this practice involves recognizing both the motivations behind it and the implications for public

health. Through this study one could get a better understanding on the motivations behind self-medication. These motivations include perception of illness severity which is a key driver of self-medication is minor and does not require a doctor's visit. From the results gained the main points regarding public health implications include safety and efficacy as while self-medication offers convenience and cost savings, it also poses risks. Incorrect self-diagnosis, choosing inappropriate treatments, or improper dosing can lead to adverse outcomes, including delayed recovery or exacerbation of symptoms. Educating the public about the proper use of medications and when to seek professional advice is crucial to mitigate these risks (Mohammed et al, 2021). Pharmacists play a pivotal role in promoting safe self-medication practices. They provide guidance on suitable over-the-counter medications, ensure correct usage and dosing, and advise on potential interactions with other medications or health conditions. Their expertise is instrumental in empowering individuals to make informed decisions about their health (Bhat et al., 2024). Cultivating a culture of informed self-care can enhance overall health outcomes and reduce unnecessary healthcare utilisation (Abubakar et al., 2023). Self-medication for conditions like coughs and colds reflects a balance between individual autonomy in managing health and the need for informed decision-making. By addressing the motivations behind self-medication and promoting safe practices through education and pharmacist support, healthcare systems can foster better health outcomes and patient empowerment. Emphasising collaboration between healthcare professionals and the public is essential in ensuring that self-medication remains a safe and effective option for managing minor health issues (Loni et al., 2023).

The findings that were found from the questionnaires highlight a high level of awareness about self-medication among the participants, with a majority being familiar with the concept. The fact that seventy-seven percent have engaged in self-medication underscores its prevalence and

suggests that many individuals prefer to manage minor health issues independently. This suggests that people often reserve professional medical consultations for more serious conditions. This reflects a pragmatic approach to healthcare, where individuals take responsibility for their minor ailments, potentially easing the burden on healthcare facilities indicating that convenience is a significant factor. This suggests a need for more flexible healthcare options, such as telemedicine or extended clinic hours, to accommodate those with busy schedules. The reasons for self-medication provide further insight into the participants' healthcare behaviors. The most common reason, cited by eighty-one percent, was that the illness was considered minor, suggesting that people often reserve professional medical consultations for more serious conditions. This reflects a pragmatic approach to healthcare, where individuals take responsibility for their minor ailments, potentially easing the burden on healthcare facilities. The twenty-three percent who self-medicated due to a lack of time to attend healthcare facilities indicates that convenience is a significant factor. This suggests a need for more flexible healthcare options, such as telemedicine or extended clinic hours, to accommodate those with busy schedules. The eighteen percent who cited lack of access to medical services point to potential disparities in healthcare availability. This group may benefit from targeted interventions to improve access to healthcare, such as mobile clinics or improved public transportation to medical facilities.

These findings reveal several key insights into the behavior and attitudes of individuals who choose not to self-medicate. The fact that 83% of respondents are uncomfortable taking medications without advice highlights a strong reliance on healthcare professionals for guidance. This suggests a high level of trust in medical expertise and a cautious approach to self-care. With 35% concerned about the risks of self-medication, it is clear that there is an awareness of the potential dangers involved. This group likely values safety and is wary of the

possible adverse effects or complications that could arise from self-medication. The 15% who are unable to link particular medicines with symptoms reflect a gap in knowledge or confidence in making appropriate health decisions. This group may benefit from educational interventions to improve their understanding of common medications and their uses. The majority of participants (61%) obtain their medications from community pharmacies. This underscores the crucial role that pharmacists play in the self-medication process. Pharmacists are often the first point of contact for individuals seeking over-the-counter (OTC) medications and advice. This finding suggests that pharmacists have a significant opportunity to provide accurate information and guidance, ensuring safe self-medication practices. A notable 25% of participants use leftover prescription medications for self-medication. This practice can be risky, as the medications might not be suitable for the current condition or may have expired. This reliance on leftover prescriptions highlights the importance of proper medication disposal and the need for individuals to consult healthcare professionals before reusing old medications. More than half of the participants (56%) use previous prescriptions to guide their self-medication practices. While this indicates a level of trust in their prior medical advice, it also poses risks if the old prescriptions are not appropriate for new symptoms or conditions. This emphasises the need for clear communication from healthcare providers about when and how medications should be used. With 26% of participants seeking advice from relatives and friends, there is a potential for misinformation and inappropriate treatment. While peer advice can be convenient, it lacks the expertise of healthcare professionals, which can lead to improper medication use. Fifty-three percent of participants know others who practice self-medication. This suggests that self-medication is a common and socially accepted practice within the community. It also indicates that individuals might be influenced by the behaviors and experiences of those around them, further emphasizing the need for accurate public health information and education.

There are several critical insights into the behaviors and practices surrounding self-medication the significant reliance on community pharmacies points to the essential role of pharmacists in ensuring safe self-medication. Pharmacists should be equipped with the necessary training to provide comprehensive advice and support to those seeking OTC medications. There is a clear need for improved public education on the risks and proper use of leftover prescription medications. Health campaigns could focus on educating the public about the dangers of using expired or inappropriate medications and the importance of consulting healthcare professionals. Healthcare providers should ensure that patients fully understand their prescriptions, including when it is appropriate to use them again. Providing written instructions and encouraging follow-up consultations can help mitigate the risks associated with self-medication. Efforts should also be made to disseminate reliable health information through various channels, including digital platforms, to counteract potential misinformation from non-professional sources. Understanding that self-medication is a socially influenced practice highlights the importance of community-wide educational initiatives. By addressing the entire community, public health campaigns can more effectively promote safe self-medication practices.

The main conditions leading to self-medication include cough and common cold (91%). This high percentage suggests that these conditions are widely considered minor and manageable without professional medical consultation. The prevalence of these ailments and the ease of recognizing their symptoms likely contribute to the commonality of self-treatment. A significant portion of the female participants turns to self-medication for menstrual pain **(83%)**. This reflects both the regular occurrence of this condition and the availability of effective over-the-counter (OTC) solutions that women feel comfortable using independently. Many

individuals also self-medicate for headaches (74%), a common and often recurring issue. The familiarity with headache symptoms and the ready availability of effective treatments such as analgesics contribute to this practice. The most common medications used for self-medication include cough Syrups (82%) indicating their popularity as a first line of defense against cough and cold symptoms. These syrups are readily available and come with clear usage instructions, making them a convenient choice for self-medication. The widespread use of analgesics (74%) reflects their effectiveness in treating various types of pain, including headaches and menstrual pain. Their availability OTC and the general public's familiarity with them further facilitate their use in self-medication. Nearly half of the participants use oral rehydration salts (47%), which indicates a good understanding among the population about the importance of managing dehydration, particularly in cases of gastrointestinal issues.

From the healthcare professionals questionnaire one can underscore a widespread acceptance of self-medication among healthcare professionals, driven primarily by patients' perceptions of minor ailments and practical considerations such as wait times and healthcare costs. This practice is largely centered around easily treatable conditions like coughs, colds, and headaches, where patients feel confident in managing symptoms independently. The prevalent use of over-the-counter medications suggests a need for robust patient education to ensure safe and effective self-care practices.

Common conditions like coughs and colds are often considered manageable with over-the-counter medications, such as cough syrups, which are readily available and perceived as effective in alleviating symptoms (Rusu et al., 2022). Self-medication is also driven by convenience. Many individuals opt to manage their health independently due to busy schedules or limited access to healthcare facilities, especially for non-serious conditions like mild

respiratory infections (Mohammed et al, 2021). Financial constraints and the time required for medical consultations further incentivise self-care. Over-the-counter medications are generally more affordable and accessible compared to visiting healthcare professionals, making them a practical choice for managing minor health issues (Ocan et al,. 2015).

The findings from the Quest HCP survey, which highlight cough and common cold as primary conditions for self-medication, mirror public perceptions and behaviours. Healthcare professionals observed that patients often self-medicate for these conditions using medications like cough syrups, which are widely recognised for their symptomatic relief.

4.5. Impact of the Covid-19 Pandemic on Self-Medication Habits

The Covid-19 pandemic has indeed reshaped self-medication practices globally, highlighting both challenges and adaptations in healthcare behaviour. One of the significant impacts of the pandemic on self-medication habits has been the restriction of mobility due to lockdowns, quarantine measures, and concerns over virus transmission. These restrictions have compelled individuals to explore alternative ways to manage their health, especially for minor ailments that do not necessitate immediate medical attention (Malik et al., 2020).

From this study it was noted that many participants turned to self-medication as a preventive measure against Covid-19. This likely involved using vitamins, supplements, or other over-the-counter remedies believed to boost immunity or alleviate mild symptoms associated with the virus. Restrictions on movement during lockdowns or quarantine periods may have hindered access to healthcare facilities, prompting individuals to manage minor health issues themselves through self-medication. Reduced availability or reluctance to seek medical care due to the pandemic-related strain on healthcare systems might have driven some individuals

to self-medicate for conditions they would normally consult a healthcare provider about.The findings underscore the dual role of the Covid-19 pandemic in influencing self-medication behaviors. While some individuals viewed self-medication as a proactive measure against Covid-19, others turned to it out of necessity due to restricted mobility and reduced access to professional healthcare services. Healthcare education should continue to emphasise responsible self-medication practices, ensuring that individuals are equipped with accurate information and understand the potential risks associated with self-treatment, especially during public health emergencies like pandemics.

Lockdowns and quarantine measures limited physical movement and access to healthcare facilities. This limitation prompted individuals to rely more on self-medication as a practical solution for managing common health issues such as coughs, colds, and headaches. With reduced options for in-person consultations, over-the-counter medications became a preferred choice for symptomatic relief (Quincho et al., 2021). Heightened concerns about Covid-19 transmission in healthcare settings led many individuals to avoid visiting hospitals or clinics unless absolutely necessary. Fear of exposure to the virus further reinforced the preference for self-care practices at home using readily available medications (Barakat & Mohasseb, 2023). Self-medication during the pandemic reflects an adaptive response to changing circumstances. Individuals sought to maintain their health and manage minor ailments independently, adapting to disruptions in healthcare services and prioritising safety by minimising exposure to potential infection sources (Makowska et al., 2020).

From the results gained the main points regarding the implications and considerations include riisk and safety measures as while self-medication during the pandemic provided a pragmatic approach to healthcare management, it also raised concerns about safety and appropriateness

of treatments. Without professional guidance, there is a risk of incorrect self-diagnosis, improper medication use, and potential adverse effects. Public health initiatives should emphasise the importance of responsible self-care practices and provide accessible guidance on safe medication use (Loni et al., 2023). The pandemic also accelerated the adoption of telemedicine and digital health platforms, enabling remote consultations and virtual healthcare services. These technologies facilitated access to medical advice and prescriptions while reducing physical contact, thereby supporting safer self-medication practices under professional guidance (Quincho et al., 2021). By enhancing health literacy and promoting evidence-based information about self-medication are crucial. Educating the public on recognising symptoms, understanding medication labels, and knowing when to seek medical advice can empower individuals to make informed decisions about their health, even during emergencies (Pathan et al., 2024).

The Covid-19 pandemic has underscored the adaptive nature of self-medication practices in response to public health emergencies. While restrictions on mobility and access to healthcare facilities have influenced these behaviours, it is essential to balance autonomy in health management with safety and informed decision-making. By leveraging digital health solutions, promoting health literacy, and reinforcing the role of healthcare professionals, healthcare systems can support responsible self-medication practices and improve overall health outcomes in times of crisis and beyond (Makowska et al., 2020).

4.6. Strategies to Enhance Safe Self-Medication Practices

To address the challenges and risks associated with self-medication, a multifaceted approach is essential. The following strategies can help promote safe and informed self-medication practices.

Targeted education for both healthcare professionals and community members is crucial. This involves training programs for healthcare providers, especially pharmacists, to offer evidence-based information and therapeutic advice (Tohan et al., 2024). Pharmacists are often the first point of contact for patients seeking over-the-counter medications and can play a key role in guiding safe self-medication practices. Also public health campaigns to increase awareness about the risks and benefits of self-medication, proper medication usage, recognising symptoms that require professional medical attention, and understanding medication labels (Ghasemyani et al., 2024).

Enhancing the accessibility and quality of healthcare services can reduce the reliance on self-medication by providing timely and appropriate medical interventions. Strategies include upgrading healthcare infrastructure by expanding and improving healthcare facilities, particularly in underserved areas, to ensure people have access to medical care when needed. Also trying to increase regular health check-ups for patients by promoting routine health screenings and preventive care to manage health conditions effectively and reduce the need for self-medication (Dubory et al,. 2024).

Strict enforcement of laws and regulations governing the sale and use of non-prescription medications is essential. This involves increasing medication safety by ensuring that over-the-counter medications are safe, effective, and appropriately labeled and also monitoring compliance by regulatory bodies should enforce compliance with regulations to protect public health (Bustanji et al., 2024). Also by strengthening the role of pharmacists in patient education and medication management can ensure safer self-care practices. This includes improving and promoting patient counseling where the pharmacists should provide clear guidance on the

correct use of medications, potential side effects, and interactions with other drugs and promoting medication reviews by offering medication review services to help patients manage their prescriptions and over-the-counter medications safely (Binu et al., 2023).

Reducing the burden of infectious diseases through public health interventions can indirectly decrease self-medication practices driven by symptoms of such conditions. Key measures include conducting and organising vaccination programs by implementing widespread vaccination campaigns to prevent infectious diseases and reduce the incidence of symptoms that might lead to self-medication. Plan a variety of health campaigns in order to raise awareness and educate the general public about prevention, early detection, and appropriate treatment of infectious diseases. Also promoting and implementing early detection strategies by encouraging early diagnosis and treatment of infectious diseases to prevent complications and the subsequent need for self-medication (Chacko et al., 2020).

4.7. Developing an Information Sheet for Public Awareness

In an effort to address the challenges and risks associated with self-medication, a comprehensive information sheet has been developed. This initiative contains validated research findings and aims to educate the public on various critical aspects of self-medication. The key components of this information sheet include recognising potential dangers by having clear guidelines and examples to help individuals identify the risks associated with self-medication, such as incorrect diagnoses, inappropriate treatment choices, and improper dosing. This leaflet will highlight real-world scenarios and potential adverse effects to underscore the importance of caution. Also by understanding safe usage guidelines patients can have detailed instructions on how to use over-the-counter medications safely. This includes dosage recommendations, reading and interpreting labels, understanding active ingredients whilst also

recognising when a medication is inappropriate for certain conditions or demographics. Lastly by emphasising the role of healthcare professionals in ensuring safe medication practices. This section will encourage individuals to seek advice from pharmacists, doctors, and other healthcare providers, especially when symptoms persist or when unsure about the appropriate treatment.

By widely disseminating this information sheet through various channels, such as community centers, pharmacies, healthcare facilities, and online platforms, the goal is to empower individuals to make informed decisions regarding self-medication. This proactive approach aims to mitigate the risks associated with self-medication and promote safer, more effective health management practices among the general public.

4.8. Limitations of the Study

The study's findings are subject to several limitations that may affect the generalisability and accuracy of the results as the questionnaires were mainly disseminated online, which may have limited the reach to older individuals and those who do not use social media. This could result in a sample that is not fully representative of the broader population. To mitigate this limitation, efforts were made to recruit more older participants through community pharmacy. A higher proportion of female respondents participated in the questionnaire, which may skew the results and limit their applicability across genders. This gender imbalance could influence the interpretation of self-medication practices and health behaviours (Dubory et al., 2024). The study also relies on self-reported data, which can introduce bias as participants might under-report or over-report their self-medication practices and health status. This can impact the accuracy and reliability of the findings. The questionnaires were conducted within specific geographical areas, potentially limiting the applicability of the results to other regions with

different healthcare systems, cultural practices, and access to medications (Pavyde et al., 2015). This study provides a snapshot of self-medication practices at a single point in time. Longitudinal data would be necessary to understand how these practices evolve, especially in response to public health interventions or changes in healthcare access. Lastly the study primarily focuses on certain conditions and medications. This narrow focus might not capture the full range of self-medication practices, potentially overlooking other significant conditions and medications used by the public (Ludovic et al., 2014).

4.9. Recommendations for Further Research

As the issue of self-medication continues to pose significant public health challenges, further research is essential to better understand and address the complexities associated with this practice. While existing studies have highlighted the prevalence and risks of self-medication, particularly concerning antibiotics, there remains a critical need for comprehensive and targeted investigations that explore the factors driving self-medication, its consequences, and the effectiveness of interventions designed to mitigate its impact (Bustanji et al., 2024).

This section proposes several potential areas for further research, focusing on the cultural, social, economic, and psychological dimensions of self-medication. These studies aim to deepen our understanding of how self-medication practices vary across different populations and contexts, the long-term effects on public health, and the strategies that could be employed to reduce the prevalence and risks associated with this behavior. By addressing these research gaps, future studies can contribute to more effective public health policies and interventions, ultimately improving health outcomes and reducing the burden of antibiotic resistance and other complications linked to self-medication (Bhat et al., 2024).

Comparative studies on self-medication patterns including cross-cultural analysis and urban against rural patterns can be done as future studies. Cross-cultural analysis involves conducting studies comparing self-medication practices across different cultural and socioeconomic groups to understand how cultural beliefs and economic factors influence self-medication behaviors. Urban against Rural Patterns involves investigate the differences in self-medication practices between urban and rural populations to identify unique risk factors and trends in each setting (Abubakar et al., 2023). An impact assessment on self-medication on antibiotic resistance could also be done by conducting longitudinal studies by examining the long-term impact of self-medication on the development of antibiotic-resistant bacteria within specific communities or regions. Effectiveness of public health interventions could be further investigated by conducting awareness campaigns by evaluating the effectiveness of public health campaigns designed to reduce self-medication by promoting awareness of the risks associated with antibiotic misuse (Lescure et al., 2018).

Psychosocial factors influencing self-medication is another area of interest in conducting further research. This could be done by conducting behavioral studies by exploring the psychological and social factors that drive individuals to self-medicate, including perceived barriers to accessing healthcare and trust in medical professionals. Also gender and age differences could be focused on by investigating how self-medication behaviors vary by gender and age, and the underlying reasons for these differences (Makowska et al., 2020). The economic burden of self-medication that could be investigated by doing a cost-effectiveness analysis by conducting studies on the economic impact of self-medication on healthcare systems, including the cost of treating complications arising from inappropriate drug use and antibiotic resistance. Impact on workforce productivity also poses an economic burden and for further inestigation one can assess how self-medication, particularly when it leads to treatment

failure, affects workforce productivity and overall economic development (Quispe-Canari et al., 2021).

Educational interventions in healthcare settings can be investigaed by conducting training programs for pharmacists and healthcare providers. One could then further investigate the impact of educational programs aimed at pharmacists and other healthcare providers on reducing the incidence of inappropriate self-medication practices. Patient education should also be researched by evaluating the effectiveness of patient education programs in clinics and hospitals on improving understanding of the risks associated with self-medication (Rahimisadegh et al., 2022). Self-medication in special populations is also an interesting catagory were further research could be done. Self-medication in pregnant women and children could be studied by investigating the prevalence and risks of self-medication among pregnant women and caregivers of young children, focusing on the potential health impacts on these vulnerable populations. Chronic disease patients are another group of special populations that could be investigated by looking into self- medication practices among patients with chronic conditions for example diabetes and hypertension and the implications for disease management and outcomes (Chako et al., 2020). Lastly technology and self-medication could be also investigated in order to observe the role of telemedicine in self-medication practices by exploring how the rise of telemedicine and online health consultations is affecting self-medication practices, particularly in regions with limited access to in-person healthcare. Online pharmacies and information could also be looked into by investigating the influence of online pharmacies and the availability of medical information on the internet on self-medication behaviors. These research areas can contribute to a deeper understanding of the risks associated with self-medication and inform strategies to mitigate these risks, improving public health outcomes (Tohan et al., 2024).

4.10. Conclusion

The aims of this study were twofold, to assess the prevalence and associated risks of self-medication practices from the perspectives of customers, medical practitioners, and pharmacists; and to develop strategies to mitigate these risks and promote safer self-medication practices. These aims were addressed through several methodological approaches designed to assess the prevalence and associated risks of self-medication practices, as well as to develop strategies to promote safer practices. The general public is self-medicating, with the main reason being that they deem their illness as a minor one. Cough syrups are the medications that the general public is self-medicating the most, as confirmed by both questionnares. Healthcare professionals reported that access to medical facilities may be a driving factor for self-medication. Self-medication challenges may be decreased by educational initiatives aimed at both healthcare professionals and community members, as well as enforcement of laws governing the use of prescription medications, increased access to high-quality public healthcare, and decreasing the burden of infectious diseases. By understanding behaviour and mindset behind this practice one can find ways to reduce the risks of self-medication whilst also promoting safe practices. Further studies could be undertaken to assess risks associated with self-medication in terms of misuse of medication or delay in seeking medical advice.

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Appendices

Appendix A: Ethics Approval

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8 February 2023

Mr Miguel Camilleri
Il Passsero
Thomas Ashby Street
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With reference to your application submitted to the Faculty Research Ethics Committee in connection with your research entitled:

Risks in Self Medication

The Faculty Research Ethics Committee is granting ethical approval for the above-mentioned application.

Professor Anthony Serracino Inglott
Chair
Faculty Research Ethics Committee

Appendix B: Risks of Self-Medication Questionnaire (General Public) / Kwestjonarju dwar ir-riskji meta wieħed jieħu medikazzjoni minn jgħeddu

PATIENTS' QUESTIONNAIRE ENGLISH

Risks Of Self Medication Questionnaire

Dear participant,

Thank you for agreeing to participate in this research entitled 'Risks in Self Medication'. This study, under the supervision of Dr Maresca Attard Pizzuto aims to determine the prevalence and the risks associated with self-medication practice.

Your voluntary participation is important for the completion of this research and will take around 10-15 minutes to complete. This questionnaire consists of three different styles of questions, either being ticking one correct answer, scale type questions or also ticking more than one correct answer. Please be assured that data collected from the questionnaire will be confidential and used for academic and research purposes only. You may refuse to complete the questionnaire or quit at any moment. Your identity will remain anonymous throughout this research study. You will not be in any form of risk or deception by participating in this study. After this research is completed, data will be discarded appropriately.

Your participation is appreciated, Miguel Camilleri

Email address: miguel.camilleri.17@um.edu.mt
Supervisor: Dr Maresca Attard Pizzuto
Email address: maresca.attard-pizzuto@um.edu.mt

Section A: Demographics

01. **Gender** ☐ Male ☐ Female ☐ Other ☐ Prefer not to say

02. **Age** ☐ 18 - 29 ☐ 30 - 39 ☐ 40 - 49 ☐ 50 - 59 ☐ 60 - 69 ☐ 70+

03. **Nationality** ☐ Maltese ☐ Non-Maltese (Please Specify) _____

04. **Locality of Residence** _____

05. **Employment Status**
- ☐ Managers
- ☐ Professional
- ☐ Technicians and associate professionals
- ☐ Clerical support workers
- ☐ Not employed
- ☐ Service and sales workers
- ☐ Skilled agricultural, forestry and fishery workers
- ☐ Craft and related trades workers
- ☐ Plant and machine operators, and assemblers
- ☐ Other

06. **Marital Status** ☐ Married ☐ Single ☐ Widowed ☐ Separated ☐ Divorced

07. **Education Level**
- ☐ Primary Education
- ☐ Secondary Education
- ☐ Post-Secondary Education
- ☐ Tertiary Education

08. **Do you have someone in your family who is a healthcare professional:**

Yes (Please Specifiy) _____ ☐ No

Section B: Patient Health Status

09. **Do you suffer from any health conditions?**

Yes (Please Specifiy) _____ ☐ No

10. **Do you have a family doctor who you go to for medical advice?**

☐ Yes ☐ No

11. **Do you have a pharmacist who you feel comfortable with to ask for medical advice?**

☐ Yes ☐ No

12. **What is your perceived health status?**

(1: Very Poor, 2: Poor, 3: Average, 4: Good, 5: Very Good)

1	2	3	4	5

13. **How satisfied are you with local healthcare?**

(1: Not Satisfied At All , 2: Not Satisfied, 3: Neutral, 4: Satisfied, 5: Very Satisfied)

1	2	3	4	5

Section C: Self-Medication Practices

14. **Do you understand the meaning of Self-Medication?**

☐ Yes ☐ No*

_____

** Self Medication: The use of drugs to treat self diagnosed disorders or symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent disease or symptoms, (WHO, 2000).*

15. **Have you ever self-medicated?**

☐ Yes ☐ No (Please skip to question 20)

16. **What are your reasons for Self-Medication? (You may tick more than one)**

☐ Illness was minor
☐ Cost of consultation with doctor
☐ Lack of access to medical service
☐ Waiting time at health care facilities
☐ Lack of time to attend health care facilities

Other (Please specify) _____

17. **From where do you obtain medications for self-medication? (You may tick more than one)**

☐ Private Pharmacy
☐ Family/Friends
☐ Leftover prescription medication
☐ Internet

Other (Please specify) _____

18. **What are your sources of information when self-medicating? (You can tick more than one)**

☐ Previous prescription
☐ Social media
☐ Relatives/Friends
☐ Adverts of TV or Radio

Other (Please specify) _____

19. **Do you know of other people who self-medicate?**

☐ No ☐ Yes (Please specify) _____

20. **What are your reasons for not self-medicating? (You may tick more than one)**

☐ Concerned with the risks of self-medication
☐ Not comfortable taking medicines without advice
☐ Previous bad experience
☐ Unable to link particular medicines with symptoms

Other (Please specify) _____

21. **What risks do you envisage with Self-medication: (You may tick more than one)**

- ☐ Incorrect Diagnosis
- ☐ Incorrect choice of treatment
- ☐ Potential adverse effects
- ☐ Delays in seeking appropriate medical advice
- ☐ Worsening of the condition
- ☐ Masking of severe disease
- ☐ Inadequate or excess dosing
- ☐ Resistance to medication
- ☐ Dependence or abuse
- ☐ Incorrect storage conditions
- ☐ Not knowing the precautions I should take when taking the medication

Other (Please specify) _____

22. **For which conditions did you opt to self-medicate? (You can tick more than one)**

- ☐ Diarrhoea
- ☐ Nausea and vomiting
- ☐ Digestive problems
- ☐ Allergy
- ☐ Cough and common cold
- ☐ Headache
- ☐ Migraine
- ☐ Fever
- ☐ Infections
- ☐ Fatigue and weakness
- ☐ Menstrual pain
- ☐ Toothache
- ☐ Chronic pain
- ☐ Mouth ulcers
- ☐ Sleeplessness
- ☐ Anxiety
- ☐ Skin problems

Other (Please specify) _____

23. **Which medications are you comfortable using for self-medication? (You may tick more than one)**

- ☐ Oral rehydration salts
- ☐ Oral contraception
- ☐ Antibiotics
- ☐ Cough Syrup
- ☐ Anti-pain medication
- ☐ Antacids

Other (Please specify) _____

Section D: Self-Medication during the Covid-19 Pandemic

24. **Did the Covid-19 Pandemic cause you to Self-Medicate:**

☐ Yes ☐ No

25. **If yes how did the Covid-19 Pandemic cause Self-Medication:**
(You may tick more than one)

☐ Lack of medical care during pandemic

☐ Prevention from Covid-19 infection

☐ Unable to leave the house

Other (Please specify) _____

26. **From the beginning of the Covid-19 Pandemic how many times did you opt to self-medicate?**

☐ Never

☐ Once

☐ Two to Five times

☐ More than five times

Other (Please specify) _____

References:

Alghanim SA. Self-medication practice among patients in a public health care system. East Mediterr Health J. 2011; 17(5): 409-16.

Bennadi D. Self-medication: A current challenge. J Basic Clin Pharma. 2014; 5(1): 19-23

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WHO. Guidelines for the Regulatory Assessment of Medicinal Products for Use in Self-Medication. World Health Organization; 2000.

KWESTJONARJU GĦALL- PAZJENTI

Kwestjonarju dawr ir-Riskji meta wieħed jieħu medikazzjoni minn jgħeddu

Għażiż/a parteċipant/a,

Grazzi talli qbilt li tipparteċipa f'din ir-riċerka intitolata ' Ir- Riskji meta wieħed jieħu medikazzjoni minn jgħeddu. Dan l-istudju taħt is superviżjoni ta' Dott. Maresca Attard Pizzuto għandu l-għan li jiddetermina l-prevalenza u r-riskji assoċjati ma` prattiċi fejn wieħed jipprova jieħu medikazzjoni minn jgħeddu.

Il-parteċipazzjoni volontarja tiegħek hija importanti biex titlesta din ir-riċerka u din tieħu bejn għaxra u ħmistax il-minuta biex issir. Il-kwestjonarju jikkonsisti minn tlett tipi ta' mistoqsijiet, tittikkja t-tweġiba t-tajba , mistoqsijiet marbutin ma` skala jew anki tittikkja iktar minn tweġiba tajba waħda. Nitolbok isseraħ rasek li t-tagħrif miġbur mill-kwestjonarju se jkun kunfidenzjali u użat biss bħal skopijiet akkademiċi u ta' riċerka. Tista' tirrifjuta li tkompli l-kwestjonarju jew tieqaf fi kwalunkwe mument.

L-identita' tiegħek tibqa' anonima waqt dan l-istudju ta' riċerka. M'inti se tkun bl-ebda mod qed tesponi lilek innifsek għal xi riskju jew qerq meta tipparteċipa f'dan l-istudju. Wara li din ir-riċerka tkun lesta l- informazzjoni titwarrab b'mod xieraq.

Il-parteċipazzjoni tiegħek hija apprezzata,

Miguel Camilleri

Indirizz tal-email: miguel.camilleri.17@um.edu.mt

Taħt is-superviżjoni ta': Dott Maresca Attard Pizzuto

Indirizz tal-email: maresca.attard-pizzuto@um.edu.mt

Sezzjoni A: Informazzjoni Demografika

01. Ġeneru

Maskil	☐	Femminil	☐
Ieħor	☐	Nippreferi ma ngħidx	☐

02. Eta'

18 - 29	☐	30 - 39	☐	40 - 49	☐
50 - 59	☐	60 - 79	☐	70+	☐

03. Nazzjonalita'

Maltija ☐ Mhix-Maltija (Jekk jogħġbok speċifika) _____

04. Lokalita' fejn toqgħod

_____

05. Status tax-xogħol

Maniġer	☐	Ħaddiema tas-sengħa relata mal-agrikoltura, sajd jew l-insaġar	☐
Professjonali	☐	Ħaddiema tal-artiġjanat u snajja' marbutin magħhom	☐
Teknixin u professjonijiet assoċjati miegħu	☐	Ħaddiema fuq impjanti u magni u assemblers	☐
Ħaddiema li jagħmlu xogħol ta' sapport klerikali	☐	Ma naħdimx	☐
Ħaddiema li jipprovdu servizz jew bejjiegħa	☐	Oħrajn	_____

06. Stat Maritali

Miżżewweġ / Miżżewġa	☐	Ġuvni / Xebba	☐
Armel / Armla	☐	Serparat/a	☐
Iddivorzjat/a	☐		

07. Livell ta' Edukazzjoni

Edukazzjoni Primarja	☐	Edukazzjoni Secondarja	☐
Edukazzjoni Post- Sekondarja	☐	Edukazzjoni Terzjarja	☐

08. Għandek xi ħadd fil-familja li hu profezzjonist fil-qasam tas-saħħa

Iva (Jekk jogħgbok speċifika) ☐ _____

Le ☐

Sezzjoni B: Status tas-Saħħa tal-Pazjent

09. Tbati minn xi kundizzjonijiet ta' saħħa?

Iva (Jekk jogħgbok speċifika) ☐ _____

Le ☐

10. Għandek tabib/a tal-familja li tmur għandu/ha għal parir mediku?

Iva ☐

Le ☐

11. Ħemm xi spiżjar/a li tħossok komdu/a tistaqsih/a għal parir mediku?

Iva ☐

Le ☐

12. Inti kif tqis li huwa l-istatus ta' saħħtek?

Ħażin ħafna	Ħażin	Medju	Tajjeb	Tajjeb ħafna

13. Kemm inti sodisfatt/a bis-servizz tas-saħħa lokali?

M'jien sodisfatt/a assolutament xejn	M'iniex sodisfatt/a	Newtrali	Sodisfatt/a	Sodisfatt/a Ħafna

Sezzjoni Ċ: Prattiki fejn wieħed/ waħda jieħu/tieħu medikazzjoni minn minn jgħeddu/jgħedda

14. Taf xinhi t-tifsira ta' meta wieħed/waħda jgħid/tgħid il-medikazzjoni li tieħu minn jgħeddek?

Iva (Jekk jogħgbok speċifika) ☐ _____

Le* ☐

15. Ġieli ħadt medikazzjoni minn jgħeddek?

Iva ☐ _____

Le (Jekk jogħhbok aqbeż għal mistoqsija 20) ☐

16. X'inhuma r-raġunijiet tiegħek għala ħadt medikazzjoni minn jgħeddek? (Tista titikkja iżjed minn waħda)

Il-mard kien ta' importanza żgħira ☐

Nuqqas ta' aċċess għas-servizz mediku ☐

M'għandix ħin nattendi faċilitajiet tal-kura tas-saħħa ☐

Il- ħlas tal-konsulta mat-tabib ☐

Il-ħin ta' stennija fil-faċilitajiet tal-kura tas-saħħa ☐

Oħrajn (Jekk jogħġbok speċifika) _____

17. Minn fejn iġġib il-medikazzjonijiet biex tieħu medikazzjonijiet minn jgħeddek? (Tista tiitikkja iżjed minn waħda)

Spiżerija Privata ☐

Dak li jifdal minn mediċina preskritta qabel ☐

Familja/ Ħbieb ☐

Xiri mill-internet ☐

Oħrajn (Jekk jogħġbok speċifika) _____

*Il-medikazzjoni li wieħed/waħda jieħu/tieħu minn jgħeddu/jgħedda: L-użu ta' medikazzjonii biex tfejjaq diżordni jew sintomi li għamilt dijanjożi tagħhom inti stess, jew l-użu kontinwu jew mhux kontinwu ta' medikazzjoni bir-riċetta tat-tabib għall-mard kroniku jew rikorrenti jew sintomi, (WHO, 2000).

18. **X'inhuma s-sorsi tal-informazzjoni tiegħek meta qiegħed/ qiegħda tagħti medikazzjoni lilek innifsek? (Tista titikkja iżjed minn waħda)**

- Riċetta ta' qabel ☐
- Qraba/Ħbieb ☐
- Medja Soċjali ☐
- Riklami fuq it-TV jew Radju ☐
- Oħrajn (Jekk jogħġbok speċifika) _____

19. **Taf b'nies oħrajn li jieħdu medikazzjoni minn jgħeddhom?**

- Iva (Jekk jogħgbok speċifika) ☐ _____
- Le ☐

20. **X'inhuma r-raġunijiet tiegħek għala ma tagħtix medikazzjoni lilek nnifsek? (Tista titikkja iżjed minn waħda)**

- Ninkwieta mir-riskji meta wieħed/waħda jieħu/tieħu medikkazzjoni minn jgħeddu/jgħedda ☐
- Esperjenzi koroħ li kelli qabel ☐
- Ma nħossnix komdu/a nieħu mediċini mingħajr parir ☐
- In-nuqqas ta' kapaċita' li nassoċja mediċini particulari mas-sintomi ☐
- Oħrajn (Jekk jogħġbok speċifika) _____

21. **X'inhuma r-riskji li inti tara meta wieħed/waħda jieħu/tieħu medikazzjoni minn jgħeddu/jgħedda? (Tista tiitikkja iżjed minn waħda)**

- Dijanjosi li mhux korretta ☐
- Għażla mhux korretta ta' kura ☐
- Potenzjal ta' effetti ħziena ☐
- Dewmien biex tfittex parir mediku kif suppost ☐
- Li l-kundizzjoni tmur għall-agħar ☐
- Li tkun qiegħed/qiegħda tgħatti mard serju ☐
- Li tieħu doza li mhix eżatta jew żejda ☐
- Reżistenza għall- mediċina ☐
- Dipendenza jew abbuż ☐
- Dewmien biex tfittex parir mediku kif suppost ☐

Li l-mediċini ma jkunux storjati fl-kundizzjonijiet tajbin ☐

Li ma tkunx taf il-prekawzjonijiet li għandek tieħu meta tieħu l-mediċina ☐

Oħrajn (Jekk jogħġbok speċifika) _____

22. **Għal-liema kundizzjonijiet għażilt li tieħu medikazzjoni minn jgħeddek? (Tista tiitikkja iżjed minn waħda)**

Dijarea ☐

Dardir u rimettar ☐

Problemi ta' diġestjoni ☐

Allerġija ☐

Sogħla u riħ komuni ☐

Uġigħ ta' ras ☐

Emikranja ☐

Deni ☐

Ggħeja u dgħjufija ☐

Uġiegħ menstruwali ☐

Uġieħ tad-dras ☐

Uġieħ Kroniku ☐

Ulċeri fil-ħalq ☐

Nuqqas ta' rqad ☐

Ansjeta' ☐

Problemi fil-ġilda ☐

Infezzjonijiet (Jekk jogħġbok speċifika) ☐

Oħrajn (Jekk jogħġbok speċifika) _____

23. **Liema medikazzjoni/medikazzjonijiet tħossok komdu/a tuża meta tieħu medikazzjoni minn jgħeddek? (Tista tiitikkja iżjed minn waħda)**

Melħ ta' rehydration orali ☐

Kontraċezzjoni orali ☐

Antibijotiċi ☐

Mistura għas-sogħla ☐

Mediċina għall-uġigħ ☐

Antaċidi ☐

Oħrajn (Jekk jogħġbok speċifika) _____

Sezzjoni D: Il-medikazzjoni li wieħed/ waħda jieħu/tiegħu minn jgħeddu/ jgħedda waqt il -pandemija tal-Covid-19

24. Il-Pandemija tal-Covid-19 ġiegħlitek tieħu medikazzjoni minn jgħeddek?

Iva ☐

Le ☐

25. Jekk iva il-Covid-19 wasslet biex wieħed/waħda jieħu/tieħu medikazzjoni minn jgħeddu/jgħedda minħabba (Tista tiitikkja iżjed minn waħda)

Nuqqas ta' kura medika waqt il-pandemija ☐

Prevenzjoni mill-pandemija tal-Covid-19 ☐

Li ma stajtx noħroġ mid-dar ☐

Oħrajn (Jekk jogħġbok speċifika) _____

26. Mill-bidu tal-Pandemija tal-Covid-19 kemm-il darba għazilt li tieħu medikazzjoni minn jgħeddek?

Qatt ☐

Darba ☐

Minn darbtejn sa ħames darbiet ☐

Iktar minn ħames darbiet ☐

Oħrajn (Jekk jogħġbok speċifika) _____

References:

Alghanim SA. Self-medication practice among patients in a public health care system. East Mediterr Health J. 2011; 17(5): 409-16.

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Appendix C: Risks of Self-Medication Questionnaire (Healthcare Professionals)

DOCTORS/PHARMACIST INTERVIEW ENGLISH

Risks Of Self Medication

Dear participant,

Thank you for agreeing to participate in this research entitled 'Risks in Self Medication'. This study, under the supervision of Dr Maresca Attard Pizzuto aims to determine the prevalence and the risk associated with self-medication practice.

Your voluntary participation is important for the conclusion of this research. The given questionnaire consists of two different styles of questions, either being ticking one correct answer or ticking more than one correct answer and will take around 5 minutes to complete. Please be assured that data collected from the questionnaire will be confidential and used for academic and research purposes only. You may refuse to complete the questionnaire or quit at any moment. Your identity will remain anonymous throughout this research study. You will not be in any form of risk or deception by participating in this study.

All data will also be processed strictly in accordance and with provisions of the general protection regulation (EU) 2016/679 for sole purpose of this study. After this research is completed, data will be discarded appropriately.

Your participation is appreciated,
Miguel Camilleri

Email address: miguel.camilleri.17@um.edu.mt
Supervisor: Dr Maresca Attard Pizzuto
Email address: maresca.attard-pizzuto@um.edu.mt

Section A: Demographics

01. **Gender**

- ☐ Male
- ☐ Female
- ☐ Other
- ☐ Prefer not to say

02. **Years of Experience**

- ☐ 1 - 5
- ☐ 6 - 10
- ☐ 11 -15
- ☐ 16 - 20
- ☐ Over 20

03. **Do you have patients who self-medicate prior to seeking professional help?**

- ☐ Yes (if yes continue to Question 4) _____
- ☐ No (Please stop here)

04. **Do you believe self-medication is an unsuccessful practice?**

- ☐ Yes
- ☐ No

05. **What do you think are the reasons for patients self-medicating? (You may tick more than one answer)**

- ☐ Acute minor conditions
- ☐ Friends
- ☐ Lack of time to attend health care facilities
- ☐ Lack of access to medical service
- ☐ Waiting time at health care facilities
- ☐ Cost of consultation with doctor
- ☐ Other (Please specify) _____

06. **For what medical complications do you think patients opt to self-medicate? (You can tick more than one)**

- ☐ Diarrhoea
- ☐ Nausea and vomiting
- ☐ Digestive problems
- ☐ Allergy
- ☐ Cough and common cold
- ☐ Headache
- ☐ Migraine
- ☐ Fever
- ☐ Infections
- ☐ Fatigue and weakness
- ☐ Menstrual pain
- ☐ Toothache
- ☐ Chronic pain
- ☐ Mouth ulcers
- ☐ Sleeplessness
- ☐ Anxiety
- ☐ Skin problems

☐ Other (Please specify) _____

07. **What types of medicines do you usually see patients self-medicating with?**

- ☐ Oral rehydration salts
- ☐ Oral contraception
- ☐ Antibiotics
- ☐ Cough Syrup
- ☐ Anti-pain medication
- ☐ Antacids

☐ Other (Please specify) _____

08. **With what medications do you believe self-medication occurs the most?**

- ☐ OTC (Over the Counter) products
- ☐ Left over POM (Prescription Only Medicines) medication

Appendix D: A Guide for Self-Medication Information Leaflet / Gwida Għal Awtomedikazzjoni

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A GUIDE FOR SELF-MEDICATION

Self-medication involves the use of medicines to treat self-diagnosed conditions or symptoms without consulting a healthcare professional.

Although self-medication has its benefits, such as convenience, cost-effectiveness, immediate symptoms relief and patient empowerment, it comes with its risks.

RISKS OF SELF-MEDICATION

Misdiagnosis: Without professional guidance, individuals may misdiagnose their condition, leading to inappropriate or ineffective treatment.

Drug Interactions & Side Effects: Self-medication can result in drug interactions, especially if individuals are taking multiple medications or have pre-existing health conditions.

Dependency and Abuse: Some medications have the potential for misuse, dependency, and abuse.

Delay in Professional Care: Relying on self-medication for serious health issues can delay the diagnosis and treatment of underlying conditions, potentially leading to worsened health outcomes.

HOW TO MITIGATE RISKS OF SELF-MEDICATION

Patient Awareness: Understand the medications, their use, dosage, side effects and interactions.

Read Labels Carefully: Follow instructions and read warnings on medication labels.

Consult Pharmacists: Seek advice from pharmacists when unsure about medication use.

Avoid Habitual Use: Do not use medications habitually without professional advice.

Seek Help for Serious Symptoms: Consult a healthcare professional if symptoms persist or worsen.

GWIDA GĦAL AWTOMEDIKAZZJONI

L-att ta' awtomedikazzjoni tirreferi għall-persuna li tuża l-mediċini biex tittratta kundizzjonijiet jew sintomi mingħajr konsultazzjoni ma' professjonist tal-kura tas-saħħa.

Għalkemm l-awtomedikazzjoni għandha l-benefiċċji tagħha; bħal konvenjenza, tnaqqis ta' spejjeż, ittaffi s-sintomi malajr u l-pazjenti jkollhom aktar kontroll fuq id-deċiżjonijiet tagħhom, għandha r-riskji tagħha wkoll.

IR-RISKJI TAL-AUTOMEDIKAZZJONI

Dijanjosi ħażina: L-individwi jistgħu jagħmlu dijanjosi ħażina li twassal għal trattament ħażin jew ineffettiv għax ma jkollhomx gwida professjonali.

Interazzjoni mediċinali u effetti sekondarji: l-awtomedikazzjoni tista' twassal għall-interazzjoni mediċinali, speċjalment jekk l-individwi jkunu qed jieħdu diversi mediċini jew ikollhom xi kundizzjonijiet tas-saħħa minn qabel.

Dipendenza u Abbuż: Ċerti mediċini jistgħu jiġu użati b'mod ħażin jew iwasslu għal dipendenza u abbuż mit-tali mediċina.

Dewmien tal-kura professjonali: id-dipendenza fuq l-awtomedikazzjoni għall-kwistjonijiet serji tas-saħħa tista' ttawwal il-proċess għad-dijanjosi u t-trattament ta' kundizzjonijiet sottostanti li, potenzjalment, iġġib is-saħħa agħar milli kienet.

KIF JISTGĦU JITNAQQSU R-RISKJI TAL-AWTOMEDIKAZZJONI

L-Għarfien tal-pazjent: Inti għandek tifhem n-natura tal-mediċini, l-użu, id-doża, l-effetti sekondarji u l-interazzjonijiet tagħhom ma' mediċini oħra.

Aqra t-tikketti b'kawtela: Segwi l-istruzzjonijiet u aqra t-twissijiet fuq it-tikketti tal-mediċina.

Ikkonsulta l-ispiżjara: Itlob parir mingħand l-ispiżjara meta tiġi f'dubju dwar l-użu tal-mediċina.

Teħodhiex drawwa: Tużax mediċini regolarment mingħajr ma tieħu parir professjonali.

Fittex l-għajnuna f'każ ta' sintomi serji: Ikkonsulta ma' professjonist tal-kura tas-saħħa jekk is-sintomi jippersistu jew jiggravaw.

Appendix E: List of Publications

Risks of Self-Medication

Miguel Camilleri, Maresca Attard Pizzuto, Lilian M Azzopardi

Department of Pharmacy, Faculty of Medicine and Surgery, University of Malta.

Background:

The relevance and impact of self-medication in the primary healthcare system is an area that receives focus as a means to empower patients and increase efficiency in the healthcare ecosystem.

Purpose:

To determine prevalence and risks associated with self-medication practices from the perspective of customers, medical practitioners and pharmacists.

Method:

Two questionnaires regarding the risks of self-medication, one intended for the general public and one for healthcare professionals, were developed and validated. Questionnaires were disseminated through social media and physically through a community pharmacy. Data analysis was carried out.

Results:

The general public's questionnaire was answered by 261 participants of which 71% (n=184) were female and 77% (n=201) admitted to self-medicating with the main reason being that the illness was minor (62%,n=163). The most popular type of medication used for self-medication

was cough syrups (63%,n=165) whilst the main risk associated with self-medication was the incorrect choice of treatment (54%,n=140). The correlations between level of education and patients understanding the meaning of self-medication (p=0.039) and patient's level of education and whether or not they self-medicate (p=0.022) were statistically significant. The healthcare professional's (HCP) questionnaire was answered by 66 participants of which 58% were female (n=38) and 64% were doctors (n=42). The main reason HCP believed patients self-medicate was due to the waiting times at healthcare facilities (73%,n=48) whilst menstrual pain and cough and common cold were the main medical issues HCP think patients opt to self-medicate for (74%,n=49).

Conclusion:

A main reason for the general public to self-medicate is the understanding that the illness is minor. Healthcare professionals reported that access to medical facilities may be a driving factor for self-medication. Further studies could be undertaken to assess risks associated with self-medication in terms of misuse of medication or delay in seeking medical advice.

Word count: 297 words

Topic: Social and administrative pharmacy

L-Università ta' Malta | Department of Pharmacy
Faculty of Medicine & Surgery

Risks of Self-Medication

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INTRODUCTION

The relevance and impact of self-medication in the primary healthcare system is an area that receives focus as a means to empower patients and increase efficiency in the healthcare ecosystem.

AIMS

To determine the prevalence and the risks associated with self-medication practices from the perspective of customers, medical practitioners and pharmacists.

METHOD

Two questionnaires aimed towards the general public and health care professionals, regarding the risks of self-medication, were developed as seen in Figure 1 and validated

Questionnaires were disseminated through social media and by hand

Data analysis

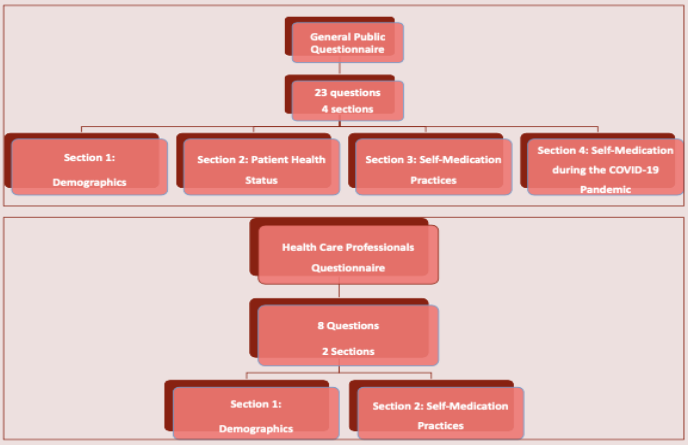

Figure 1: Questionnaires' Structure

RESULTS

- The general public's questionnaire was answered by 261 participants of which 71% (n=184) were female and 77% (n=201) admitted to self-medicating with the main reason being that the illness was minor (62%, n=163).
- The most popular type of medication used for self-medication was cough syrups (82%, n=165) (Figure 2) whilst the main risk identified by the public was the incorrect diagnosis (56%, n=146).
- The correlations between level of education and patients knowing the meaning of self-medication (p=0.039) and patient's level of education and whether or not they self-medicate (p=0.022) were statistically significant.
- The healthcare professional's (HCP) questionnaire was answered by 66 participants of which 58% were female (n=38) and 55% were doctors (n=36).
- The main reason HCP believed patients self-medicate was due to acute minor conditions (74%, n=49) whilst menstrual pain and cough and common cold were the main medical issues HCP think patients opt to self-medicate for (74%, n=49).

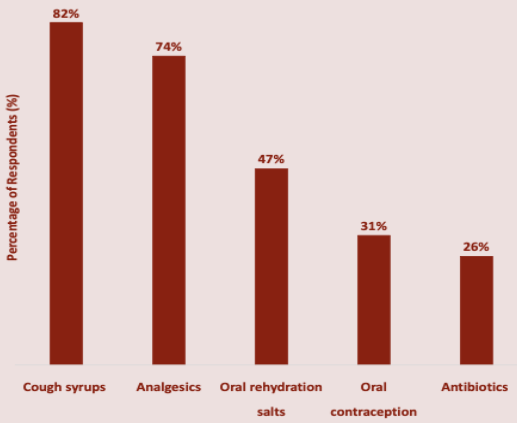

Figure 2: Medications the general public is self-medicating with (N= 201)

CONCLUSION

The general public is self-medicating, with the main reason being that the illness was minor. Healthcare professionals reported that access to medical facilities may be a driving factor for self-medication. Further studies could be undertaken to assess risks associated with self-medication in terms of misuse of medication or delay in seeking medical advice.