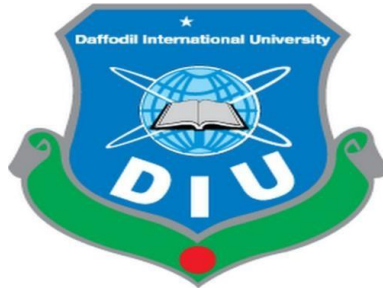


Review and Analysis of Knowledge about Self-Medication among Rural People in Bangladesh



**A project work submitted in partial fulfilment of the requirements
for the degree of Master of Pharmacy (M.Pharm).**

Submitted To

Department of Pharmacy
Faculty of Allied Health Sciences
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Approval

This project submitted to the Department of Pharmacy, Faculty of Allied Health Science, Daffodil International University, Has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Master of Pharmacy (M.Pharm) and approved as to its style and contents.

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I hereby certify that I independently completed this project report in order to satisfy the requirements for the Masters of Pharmacy (M.Pharm) degree under the supervision of Farjana Islam Aovi, Assistant Professor, Department of Pharmacy, Faculty of Allied Health Sciences, Daffodil International University. By signing this, I certify that I am the only author of this work. In addition, I hereby swear that neither this project nor any of its components have ever been submitted to another university for the purpose of receiving a Master's degree or any other degree.

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I'm grateful to God for providing me with the health and stamina I need to finish this work.

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Rupa Khatun
Author

Dedication

I dedicate this work at first to my God then to my parents and to my teachers and my friends.

Abstract

Background: Self-medication, the practice of treating minor health issues without consulting healthcare professionals, is common among rural populations in Bangladesh. Understanding the patterns and factors associated with self-medication is essential for developing targeted interventions and promoting safe healthcare practices.

Methods: A survey was conducted among rural people in Bangladesh to gather information about self-medication practices. The survey questionnaire included questions about the participants' gender, age, occupation, education level, self-medication practices, reasons for self-medication, sources of medication information, awareness of risks, and perception of healthcare availability. A total of 200 participants were surveyed, and the data was analyzed to identify patterns and trends. The survey was conducted during the period from May 3, 2023 to June 3, 2023.

Results: The survey revealed that self-medication is prevalent among rural individuals, with 77.5% of participants engaging in self-treatment for minor health issues. Headache (65%), fever (55%), and cough/cold symptoms (47.5%) were the most common health issues for which self-medication was practiced. Painkillers (70%) and cough and cold medicines (45%) were the most commonly used medications. Healthcare professionals (45%), family and friends (32.5%), and online sources (30%) were the main sources of medication information. The primary reasons for self-medication were the cost of healthcare services (60%) and lack of nearby healthcare facilities (35%). While 55% of participants were aware of the potential risks associated with self-medication, 15% had partial awareness, and 30% had no awareness. The perceived availability of healthcare services was rated as excellent (7.5%), good (30%), fair (47.5%), and poor (15%).

Conclusion: Self-medication is prevalent among rural people in Bangladesh, influenced by cost, healthcare accessibility, and medication availability. Targeted education and interventions are needed to promote responsible self-medication practices. Enhancing healthcare accessibility and increasing awareness of self-medication risks are crucial. Policymakers and healthcare providers must take action to ensure safe and informed self-medication practices among rural populations in Bangladesh.

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

Self-medication, the practice of treating one's own ailments without professional medical advice, is a prevalent phenomenon in rural areas of Bangladesh. In these regions, where access to healthcare services is limited, rural populations often resort to self-medication as a means to address their health needs.[1] This review article aims to provide an in-depth analysis of self-medication practices among rural people in Bangladesh, shedding light on the prevalence, patterns, factors influencing self-medication, and its associated risks and implications. Understanding the knowledge, attitudes, and practices related to self-medication in rural communities is essential for developing targeted interventions and promoting safe and responsible use of medications.

In Bangladesh, the majority of the population resides in rural areas, where healthcare infrastructure is inadequate, healthcare providers are scarce, and financial constraints limit access to formal medical care. As a result, rural residents often turn to self-medication as a practical solution to manage common health issues. Self-medication encompasses a wide range of activities, including the purchase and use of over-the-counter drugs, herbal remedies, and traditional medicines without consulting healthcare professionals.[2] This practice is deeply rooted in cultural beliefs, limited availability of healthcare services, and economic constraints.

The prevalence of self-medication among rural people in Bangladesh is a matter of concern. Numerous studies and surveys have been conducted to assess the extent of self-medication practices in these communities. These investigations consistently indicate a high prevalence of self-medication, with rural individuals relying on self-treatment for a variety of ailments, including fever, cough, cold, gastrointestinal disorders, and minor injuries. Self-medication serves as a primary response to health issues in these areas due to the lack of accessibility and affordability of healthcare services.

Various factors contribute to the prevalence of self-medication in rural Bangladesh. Socioeconomic factors, such as poverty and limited financial resources, often make seeking professional healthcare unaffordable for rural individuals. Additionally, the scarcity of healthcare providers and facilities in remote areas leads to reliance on self-medication as a convenient and immediate solution.[3] Cultural beliefs and traditional practices also play a significant role, as rural

communities have long-standing knowledge of traditional remedies passed down through generations.

Knowledge and awareness regarding self-medication practices among rural people in Bangladesh are vital for understanding their decision-making processes. Studies have shown that rural individuals often acquire their medication knowledge from informal sources, such as friends, family, neighbors, and drugstore personnel.[4] This reliance on informal sources can lead to misconceptions, incomplete information, and incorrect dosages, increasing the risk of adverse effects. Therefore, understanding the existing knowledge gaps and promoting accurate information dissemination are crucial in improving self-medication practices.

The patterns of self-medication among rural populations in Bangladesh exhibit distinct characteristics. Commonly used medications include over-the-counter drugs, herbal remedies, and home remedies. Local drugstores, village markets, and even neighboring countries serve as primary sources for obtaining these medications. The dosage patterns and treatment durations vary, with rural individuals often adjusting their medication regimens based on personal experiences or advice from others. It is essential to recognize and understand these patterns to develop appropriate interventions for promoting safe self-medication practices.[5]

While self-medication can offer convenience and immediate relief to rural populations, it also poses significant risks and implications. Incorrect self-diagnosis and improper medication usage may lead to delayed treatment for underlying health conditions, exacerbation of symptoms, and potential drug interactions or adverse effects.[6] Furthermore, the misuse and overuse of antibiotics contribute to the emergence of antimicrobial resistance, a global health concern. The burden on healthcare systems is also significant, as self-medication practices can strain resources and complicate the management of diseases.

Addressing self-medication among rural people in Bangladesh presents several challenges. The limited availability of healthcare infrastructure, including healthcare centers and trained healthcare providers, poses a significant obstacle to seeking professional medical advice. Additionally, the lack of regulatory control over the availability and sale of medications contributes to unregulated and inappropriate use. Cultural beliefs and traditional practices deeply rooted in rural communities

also influence self-medication behaviors and may require culturally sensitive approaches in intervention strategies.

To promote safe and responsible self-medication practices, targeted interventions and educational campaigns are necessary. Community-based health education programs can play a crucial role in raising awareness about the risks, benefits, and limitations of self-medication. Training healthcare providers to communicate effectively with rural populations and provide appropriate guidance on self-medication can contribute to improved healthcare outcomes. Establishing medication information centers and helplines can serve as reliable sources of information, ensuring access to accurate knowledge regarding medication use.

1.2 Prevalence of Self-Medication in Rural Bangladesh

The prevalence of self-medication in rural areas of Bangladesh is a significant healthcare issue. Limited access to healthcare services, financial constraints, and cultural factors contribute to the high prevalence of self-medication practices in these regions.[3] While accurate statistics specific to rural areas may be limited, available data and studies provide insights into the prevalence of self-medication in Bangladesh as a whole.

Limited Access to Healthcare Services:

Rural areas in Bangladesh often face challenges in terms of healthcare infrastructure and access to healthcare services. The shortage of healthcare facilities, qualified healthcare professionals, and limited transportation options make it difficult for individuals to seek professional medical advice.[4] As a result, many rural residents resort to self-medication as a more accessible and immediate solution to their health concerns.

Financial Constraints:

Financial constraints play a significant role in the prevalence of self-medication in rural areas. Limited financial resources and the cost of healthcare services, including consultation fees, diagnostic tests, and prescribed medications, make professional medical care unaffordable for many individuals. Self-medication becomes a more viable and cost-effective option, as it allows individuals to allocate their limited resources to other essential needs.[3]

Cultural Factors and Traditional Practices:

Cultural factors and traditional practices influence the prevalence of self-medication in rural Bangladesh. Rural communities often have a long-standing tradition of using herbal remedies and home remedies, which are considered safe, readily available, and deeply rooted in local customs. The reliance on traditional remedies and cultural beliefs about their effectiveness can contribute to the preference for self-treatment rather than seeking professional medical advice.[3]

High Prevalence of Over-the-Counter Medications:

The easy availability of over-the-counter (OTC) medications without the need for a prescription contributes to the prevalence of self-medication in rural areas. Local drugstores, village markets, and neighboring countries often serve as primary sources for obtaining OTC medications.[4] The convenience and affordability of these medications make self-medication a common practice among rural residents.

Limited Awareness and Knowledge:

Limited awareness and knowledge regarding appropriate medication use and potential risks contribute to the prevalence of self-medication in rural areas. Individuals may lack information about proper dosages, treatment durations, and potential adverse effects. This can result in incorrect self-diagnosis, inappropriate medication choices, and potential health risks.

While the specific prevalence rates of self-medication in rural Bangladesh may vary across regions, the aforementioned factors contribute to its widespread occurrence. Addressing these challenges requires comprehensive interventions, including improving healthcare infrastructure,[5] increasing access to healthcare services, promoting health education and awareness, and ensuring the availability of affordable and quality healthcare options. By addressing the underlying factors that drive self-medication practices, the prevalence of self-medication in rural areas of Bangladesh can be reduced, leading to improved healthcare outcomes for the population.[6,7]

1.3 Factors Influencing Self-Medication among Rural People in Bangladesh

Self-medication, the practice of treating one's own ailments without consulting a healthcare professional, is influenced by a myriad of factors, particularly in rural areas where access to healthcare services is limited. Understanding the factors that influence self-medication among rural people in Bangladesh is crucial for developing targeted interventions and promoting safe and responsible use of medications.[7] This section explores the various factors that contribute to self-medication practices in rural communities, including socioeconomic factors, educational levels, cultural beliefs, availability of healthcare services, and the influence of peers and family members.

Socioeconomic Factors:

Socioeconomic factors, such as poverty and limited financial resources, play a significant role in influencing self-medication practices. Rural individuals in Bangladesh may face financial constraints that prevent them from seeking professional medical advice or purchasing prescribed medications.[8] As a result, self-medication becomes a more affordable option, allowing individuals to allocate their limited resources to other essential needs.

Limited Access to Healthcare Services:

The limited availability and accessibility of healthcare services in rural areas contribute to the prevalence of self-medication. Rural communities often have inadequate healthcare infrastructure, including a scarcity of healthcare facilities and a shortage of qualified healthcare providers. Individuals residing in remote areas may have to travel long distances to reach the nearest healthcare facility, incurring transportation costs and potential loss of income.[9] Self-medication is seen as a more convenient and immediate solution to address health concerns in the absence of accessible healthcare services.

Educational Levels and Health Literacy:

Educational levels and health literacy significantly influence self-medication practices. Limited education levels may result in a lack of knowledge regarding health conditions, appropriate medication use, and the potential risks associated with self-treatment. Individuals with low health literacy may have difficulty understanding medication labels, dosages, and potential interactions, leading to inappropriate self-medication practices. Improving health literacy and providing clear

information on medication use can help individuals make informed decisions about self-medication.[10]

Cultural Beliefs and Traditional Practices:

Cultural beliefs and traditional practices deeply rooted in rural communities shape self-medication behaviors. Traditional remedies and herbal medicines are often considered safe, readily available, and deeply embedded in local customs and beliefs. Rural individuals may have a strong trust in these traditional practices, relying on them for managing common health issues.[11] Cultural beliefs may prioritize self-treatment with traditional remedies over seeking professional medical advice, perpetuating the practice of self-medication.

Availability and Affordability of Medications:

The availability and affordability of medications significantly influence self-medication practices. In rural areas, over-the-counter drugs, herbal remedies, and home remedies are easily accessible without the need for a prescription. Local drugstores and village markets serve as primary sources for obtaining these medications. The convenience and lower cost of self-medication make it an attractive option for individuals facing financial constraints or limited access to healthcare services.

Influence of Peers and Family Members:

The influence of peers and family members plays a role in shaping self-medication practices. In close-knit rural communities, individuals often seek advice from friends, family, and neighbors when it comes to managing health issues. Recommendations from trusted individuals who have experienced similar health problems may influence the decision to self-medicate.[12] Peer pressure and cultural norms within the community can also contribute to the acceptance and normalization of self-medication practices.

Lack of Awareness and Information:

A lack of awareness and accurate information regarding healthcare options and the potential risks of self-medication can lead individuals to rely on self-treatment. Limited access to reliable healthcare information, particularly in remote areas, can contribute to misconceptions,

inappropriate medication choices, and incorrect dosages. Educational campaigns and health literacy programs are necessary to bridge this knowledge gap and provide individuals with the necessary information for making informed decisions about their health.[13,14]

1.4 Knowledge, Attitudes, and Practices related to Self-Medication among Rural People in Bangladesh

Knowledge, attitudes, and practices (KAP) regarding self-medication play a crucial role in shaping the behavior and decisions of individuals, particularly in rural areas where access to healthcare services is limited. This section explores the KAP related to self-medication among rural people in Bangladesh. It examines the sources of medication-related information, understanding of drug indications and potential risks, attitudes towards seeking professional medical advice, and the practices followed in self-medication.[14] Understanding these aspects is essential for developing targeted interventions to promote safe and responsible self-medication practices.

Sources of Information and Knowledge:

In rural areas of Bangladesh, where healthcare infrastructure is limited, individuals often rely on various sources of information to acquire knowledge about medications and self-treatment. Common sources include informal channels such as friends, family members, neighbors, and local drugstore personnel.[13] These sources may provide information based on personal experiences, cultural beliefs, or anecdotal evidence. However, the reliability and accuracy of such information may vary, leading to potential knowledge gaps and misconceptions.

Formal sources of information, such as healthcare professionals, play a limited role in providing medication-related knowledge in rural settings due to their limited availability. Lack of access to qualified healthcare providers and a shortage of healthcare facilities in remote areas further limits the dissemination of accurate medication information.

Understanding of Drug Indications and Risks:

The level of understanding regarding drug indications and potential risks associated with self-medication among rural populations in Bangladesh varies. Studies have shown that individuals may have a general understanding of some commonly used medications, particularly those for symptomatic relief such as analgesics or antipyretics. However, knowledge gaps exist when it

comes to the appropriate use of medications for specific conditions, potential adverse effects, drug interactions, and contraindications.[14]

Misconceptions and misinformation about medications are prevalent, often perpetuated by traditional beliefs and cultural practices. For example, individuals may tend to self-medicate with antibiotics for common colds or viral infections, despite their ineffectiveness against such conditions.[15] This lack of awareness regarding appropriate drug usage can contribute to the emergence of antibiotic resistance and other adverse health outcomes.

Attitudes Towards Seeking Professional Medical Advice:

Attitudes towards seeking professional medical advice among rural populations in Bangladesh are influenced by a combination of factors. Financial constraints, limited access to healthcare services, and the convenience of self-medication often contribute to individuals' preference for self-treatment. Seeking professional medical advice may be perceived as time-consuming, expensive, and unnecessary for common health issues.[15]

Cultural beliefs and trust in traditional remedies may also shape attitudes towards seeking professional medical advice. Rural communities often have a long-standing tradition of using herbal medicines and home remedies, which are considered safe, readily available, and deeply rooted in local customs. As a result, individuals may prioritize these traditional practices over consulting healthcare professionals.

Practices in Self-Medication:

Self-medication practices among rural populations in Bangladesh exhibit diverse patterns. Commonly used medications include over-the-counter drugs, herbal remedies, and home remedies. Local drugstores, village markets, and neighboring countries often serve as primary sources for obtaining these medications without the need for a prescription.[16]

Dosage patterns and treatment durations in self-medication vary among individuals. Some individuals may adjust their medication regimens based on personal experiences or recommendations from friends, family, or neighbors. Others may adhere to traditional practices that dictate specific dosages and treatment durations based on cultural beliefs.

However, the practices of self-medication are not without risks. Inadequate knowledge about proper dosages, potential adverse effects, and appropriate treatment durations can lead to medication misuse. The lack of monitoring and follow-up by healthcare professionals further adds to the challenges in ensuring safe and responsible self-medication practices.[16,17]

Implications and Challenges:

The knowledge gaps, attitudes, and practices related to self-medication among rural people in Bangladesh have significant implications for individual health outcomes and the healthcare system as a whole. Inadequate knowledge and misconceptions can lead to incorrect self-diagnosis, delayed treatment, and increased risks of adverse drug reactions.[17] This can impact individual well-being and contribute to the burden on healthcare facilities when complications arise from inappropriate self-medication practices.

Addressing these challenges requires multifaceted approaches. Targeted educational interventions are needed to raise awareness about the risks and benefits of self-medication, proper medication use, and the importance of seeking professional medical advice when necessary. Community-based health education programs can play a vital role in disseminating accurate information and promoting responsible self-medication practices.[18-20]

Improving access to qualified healthcare providers in rural areas is crucial in addressing the limitations of self-medication. Efforts should be made to train and deploy healthcare professionals to these underserved regions, facilitating easier access to professional medical advice. Telemedicine and mobile health initiatives can also bridge the gap by providing remote healthcare consultations and guidance.

1.5 Patterns of Medication Use

Patterns of medication use refer to the trends and behaviors observed in how individuals consume medications for various health conditions. Understanding these patterns provides insights into medication adherence, dosage adherence, treatment durations, and other factors that influence the effectiveness and safety of medication use.[18]

Medication Adherence:

Medication adherence refers to the extent to which individuals follow prescribed medication regimens. Adherence can be influenced by various factors, including individual motivation, understanding of medication instructions, and the perceived benefits and risks of the medication.

a. Good Adherence: Some individuals exhibit good adherence, diligently following prescribed dosages, treatment schedules, and instructions.[19] They adhere to the recommended frequency and duration of medication use, resulting in optimal therapeutic outcomes.

b. Poor Adherence: Poor adherence is a common issue in medication use. Some individuals may forget to take their medications, intentionally skip doses, or discontinue treatment prematurely. This can lead to suboptimal outcomes, treatment failure, and potential health complications.[18]

Variations in Dosing:

Variations in dosing refer to deviations from the prescribed dosage of medication. This can occur due to several reasons, including individual preferences, misconceptions, or misunderstandings about dosage instructions.

a. Underdosing: Underdosing occurs when individuals take less medication than prescribed. This can result from concerns about potential side effects, cost considerations, or a belief that a lower dose will be sufficient.[19] Underdosing may lead to inadequate treatment and reduced therapeutic efficacy.

b. Overdosing: Overdosing refers to the consumption of medication in excess of the prescribed dosage. It can result from misconceptions that higher doses will lead to faster or more effective results. Overdosing increases the risk of adverse effects, potential toxicity, and other health complications.[20]

Treatment Durations:

Treatment durations refer to the length of time individuals continue taking medications as prescribed. Adhering to the recommended treatment duration is essential for achieving optimal outcomes and preventing relapse or recurrence of health conditions.

a. Complete Treatment: Complete treatment refers to individuals who adhere to the full prescribed duration of medication use. They continue taking medications until the prescribed course is completed, even if symptoms improve before completion.[21] This is particularly important for antibiotics and other medications targeting infectious diseases to prevent the development of drug resistance.

b. Premature Discontinuation: Premature discontinuation occurs when individuals stop taking their medications before completing the prescribed course. This may be due to improvement in symptoms, perceived treatment efficacy, or concerns about side effects. Premature discontinuation can lead to incomplete treatment, potential relapse, and reduced effectiveness of the medication.[22]

Factors Influencing Patterns of Medication Use:

Various factors influence patterns of medication use among individuals. These factors can shape adherence, dosing variations, and treatment durations. Common influences include:

a. Health Beliefs and Attitudes: Individuals' beliefs and attitudes towards medication and treatment can significantly influence their patterns of medication use. Positive beliefs about medication efficacy, trust in healthcare providers, and understanding the importance of adherence can promote favorable medication use patterns.[23] Conversely, negative beliefs, fear of side effects, or mistrust of medications can lead to poor adherence or deviations from prescribed regimens.

b. Health Literacy and Understanding: Health literacy, including individuals' ability to understand medication instructions, plays a crucial role in medication use patterns. Limited health literacy can lead to misunderstandings, confusion about dosages, or incorrect administration, negatively impacting medication adherence and treatment outcomes.[24]

c. Socioeconomic Factors: Socioeconomic factors, such as financial constraints, can influence patterns of medication use. Limited access to healthcare services, high medication costs, or lack of insurance coverage can contribute to poor adherence, underdosing, or premature discontinuation of medication.

d. Cultural and Social Factors: Cultural beliefs, social norms, and the influence of family and peers can impact medication use patterns. Cultural practices, including traditional remedies or herbal medicines, may influence individuals' choices and adherence to prescribed medications. Social support and encouragement from family or peers can positively influence medication adherence and treatment durations.[22,23]

1.6 Risks and Implications of Self-Medication

Self-medication, the practice of treating one's own ailments without professional medical advice, carries various risks and implications. While self-medication may offer convenience and immediate relief, it also poses potential dangers to individuals' health and has broader implications for healthcare systems.

Incorrect Diagnosis:

One of the significant risks of self-medication is the potential for incorrect diagnosis. Without proper medical training and evaluation, individuals may misdiagnose their conditions, leading to inappropriate medication choices.[25] This can result in ineffective treatment or exacerbation of symptoms, delaying the appropriate management of underlying health issues.

Delayed Treatment for Serious Conditions:

Self-medication can lead to delayed treatment for serious or chronic conditions. Individuals may attempt to manage symptoms on their own, potentially neglecting warning signs or dismissing the severity of their health conditions. Delayed medical intervention can result in complications, disease progression, and worsened health outcomes.

Adverse Drug Reactions:

Using medications without professional guidance increases the risk of adverse drug reactions. Individuals may be unaware of potential side effects, drug interactions, or contraindications, which can lead to unexpected and harmful reactions. Adverse drug reactions can range from mild discomfort to severe allergic reactions or organ damage, posing significant risks to individuals' health.[26]

Drug Interactions:

Self-medication can also increase the risk of drug interactions. Individuals may not be aware of potential interactions between medications, including over-the-counter drugs, herbal remedies, and prescription medications. These interactions can reduce the effectiveness of treatments or lead to adverse effects. Individuals with existing medical conditions or those taking multiple medications are particularly vulnerable to drug interactions.[24]

Development of Antimicrobial Resistance:

Inappropriate use of antibiotics through self-medication contributes to the development of antimicrobial resistance, a growing global health concern. When antibiotics are used indiscriminately or inappropriately, bacteria can develop resistance, rendering these medications less effective in treating infections. The emergence of antimicrobial resistance makes it harder to combat infectious diseases and poses significant challenges for public health.[25]

Masking of Underlying Health Issues:

Self-medication may provide temporary relief of symptoms without addressing the underlying health issues. By masking symptoms, individuals may delay or forego necessary medical evaluations, potentially missing critical diagnoses. This can result in prolonged suffering, complications, and negative long-term health consequences.

Burden on Healthcare Systems:

The implications of self-medication extend beyond individual health risks and can strain healthcare systems. Inadequate self-medication practices contribute to increased healthcare utilization, as individuals may seek medical assistance when their conditions worsen or develop complications due to inappropriate self-treatment. This burden on healthcare systems can lead to overwhelmed facilities, longer wait times, and decreased access to healthcare for those in need.[26]

Economic Implications:

Self-medication practices can have economic implications for individuals and healthcare systems. While self-medication may be initially cost-effective, the risks associated with incorrect treatment or complications can result in increased healthcare expenses in the long run. Additionally, the

economic burden on healthcare systems due to the management of self-medication-related complications can divert resources from other critical healthcare needs.

1.7 Challenges and Opportunities in Self-Medication

Self-medication presents both challenges and opportunities in healthcare. While it offers convenience and immediate relief, it also carries risks and implications for individuals' health. This section explores the challenges and opportunities associated with self-medication, highlighting areas where improvements can be made to promote safe and responsible self-treatment practices.

Challenges:

Lack of Professional Guidance: One of the primary challenges in self-medication is the absence of professional medical guidance. Individuals may lack the necessary knowledge and expertise to accurately diagnose their conditions and select appropriate medications. This can lead to incorrect treatment choices, inadequate dosing, and potential adverse effects.[27]

Limited Health Literacy: Limited health literacy is a significant challenge in self-medication. Many individuals may struggle to understand medication labels, dosage instructions, and potential risks. This can result in confusion, misunderstandings, and incorrect medication use, compromising the effectiveness and safety of self-treatment.

Misinformation and Misconceptions: Widespread misinformation and misconceptions about medications can pose challenges in self-medication. Cultural beliefs, anecdotal information, and unverified sources may perpetuate inaccurate information regarding medication use. These misconceptions can lead to inappropriate medication choices, underdosing, overdosing, or reliance on ineffective or potentially harmful remedies.[28]

Lack of Monitoring and Follow-up: In self-medication, the absence of professional monitoring and follow-up can be problematic. Without regular assessments, individuals may not have an opportunity to evaluate the effectiveness of their treatment or identify potential side effects. This can lead to delays in seeking appropriate medical care when needed.

Emergence of Antimicrobial Resistance: Inappropriate use of antibiotics through self-medication contributes to the emergence of antimicrobial resistance. Self-medication with antibiotics for viral infections or improper dosage regimens can lead to the proliferation of resistant bacteria. This poses a significant challenge to public health as it diminishes the effectiveness of antibiotics in treating infections.[25]

Opportunities:

Health Education and Awareness: One of the key opportunities in self-medication is the promotion of health education and awareness. By providing accurate and reliable information on appropriate medication use, potential risks, and the importance of seeking professional medical advice when necessary, individuals can make informed decisions about their health. Health education initiatives can empower individuals with the knowledge and skills to engage in responsible self-medication practices.[26]

Improved Health Literacy: Enhancing health literacy is crucial in promoting safe and effective self-medication. By improving individuals' understanding of medication labels, dosage instructions, and potential risks, they can better navigate self-treatment practices. Health literacy programs can focus on providing accessible and culturally appropriate information to bridge the knowledge gap and empower individuals to make informed decisions.

Accessible Healthcare Services: Increasing access to healthcare services is an important opportunity in mitigating the challenges of self-medication. By improving the availability of healthcare facilities, qualified healthcare providers, and affordable medications, individuals have better options for seeking professional medical advice and appropriate treatments.[26,27] Telemedicine and mobile health initiatives can also expand access to healthcare services in remote areas.

Collaboration with Community Health Workers: Community health workers can play a vital role in promoting safe self-medication practices. They can serve as a bridge between individuals and healthcare providers, providing basic health education, monitoring medication use, and referring individuals to professional healthcare when necessary. Collaborating with community health workers can help overcome the challenges of self-medication in areas with limited healthcare access.[28]

Regulatory Measures: Regulatory measures can help ensure the safety and quality of medications available for self-medication. Governments and regulatory bodies can enforce regulations on the sale and distribution of medications, particularly antibiotics and other prescription drugs, to prevent their misuse and overuse. Clear labeling, proper packaging, and guidelines for over-the-counter medications can also contribute to responsible self-medication practices.[29]

1.8 Interventions for Promoting Safe Self-Medication

Promoting safe and responsible self-medication practices is essential for ensuring the well-being of individuals. This section outlines several interventions that can be implemented to promote safe self-medication and address the challenges associated with it.

Health Education and Awareness Programs:

Implementing comprehensive health education and awareness programs is crucial in promoting safe self-medication practices. These programs should target individuals of all ages and socioeconomic backgrounds, focusing on providing accurate information about medication use, potential risks, and the importance of seeking professional medical advice when necessary.[30] Health literacy initiatives can teach individuals how to read medication labels, understand dosing instructions, and recognize potential adverse effects.

Accessible and Reliable Healthcare Information:

Improving access to reliable healthcare information is vital for promoting safe self-medication practices. This can be achieved through various channels, such as healthcare websites, mobile applications, and helplines. These resources should provide evidence-based information about medications, their indications, appropriate dosages, potential side effects, and potential drug interactions. Ensuring accessibility to accurate information empowers individuals to make informed decisions regarding self-medication.[26,27]

Training and Capacity Building:

Training healthcare professionals, community health workers, and pharmacists in promoting safe self-medication practices can have a significant impact. Healthcare professionals should receive education and training on providing clear medication instructions, emphasizing the importance of

appropriate dosing, and educating patients on potential risks and benefits. Community health workers and pharmacists can play a crucial role in counseling individuals on proper medication use, identifying potential drug interactions, and referring individuals to professional healthcare when needed.[37]

Improved Packaging and Labeling:

Clear and standardized packaging and labeling of over-the-counter medications can promote safe self-medication practices. Ensuring that medications are properly labeled with dosage instructions, indications, potential side effects, and contraindications can help individuals make informed decisions.[38] Clear instructions in a language accessible to the target population and appropriate pictograms can also enhance understanding and reduce the risk of incorrect medication use.

Regulatory Measures:

Regulatory measures play a vital role in promoting safe self-medication practices. Governments and regulatory bodies should enforce regulations on the sale and distribution of medications,[39] particularly prescription drugs and antibiotics, to prevent their misuse and overuse. Monitoring and controlling the availability of certain medications can help ensure that individuals seek professional medical advice when necessary.[40] Additionally, regulations can promote the quality and safety of over-the-counter medications, ensuring they meet recognized standards.

Community Engagement:

Engaging the community in promoting safe self-medication practices can be highly effective. Community-based health education programs, workshops, and campaigns can raise awareness and disseminate information about responsible self-medication. Involving local leaders, community organizations, and influencers can enhance the reach and impact of these initiatives.[41] Furthermore, peer support groups can be established to facilitate knowledge sharing and encourage responsible medication use practices.

Telemedicine and Mobile Health:

Leveraging technology through telemedicine and mobile health initiatives can improve access to healthcare advice and guidance.[42] These platforms can connect individuals with healthcare

professionals remotely, allowing them to seek advice and receive guidance on self-medication practices. Mobile health applications can also provide medication reminders, dosage tracking, and access to reliable healthcare information, empowering individuals to make informed decisions.[43]

CHAPTER TWO

LITERATURE REVIEW

2.0 Literature Review

2.1 Ruiz, M.E. Risks of self-medication practices. *Curr. Drug Saf.* 2010, 5, 315–323.

The selection and usage of medicines by individuals (or members of the individuals' family) to cure self-recognized or self-diagnosed ailments or symptoms is referred to as self-medication. There are several advantages to appropriate self-medication, including increased patient access to medication and relief, the patient's active role in his or her own health care, better use of physicians' and pharmacists' skills, and a reduced (or, at the very least, optimized) burden on governments due to health expenditure associated with the treatment of minor health conditions. Self-medication, on the other hand, is far from a completely risk-free activity, particularly when not carried out appropriately. Self-medication can lead to incorrect self-diagnosis, delays in seeking medical advice when needed, infrequent but severe adverse reactions, dangerous drug interactions, incorrect administration, incorrect dosage, incorrect therapy selection, masking of a severe disease, and the risk of dependence and abuse.

2.2 Alam, N.; Saffoon, N.; Uddin, R. Self-medication among medical and pharmacy students in Bangladesh. *BMC Res. Notes* 2015, 8, 763.

According to several research, impoverished countries bear a greater burden of antibiotic self-medication than developed countries. The prevalence ranges from 4-75% in Asia to 3% in Northern Europe. In Karachi, Pakistan, self-medication was fairly widespread among university students. Medical students had a frequency of 77.7%, while non-medical students had a frequency of 83.3%. Increased pharmaceutical promotion raises concerns about inaccurate self-diagnosis, drug interactions, and drug use for purposes other than those intended. Morbidity is always rising as a result of self-medication.

2.3 Loyola Filho, A.I.; Lima-Costa, M.F.; Uchoa, E. Bambui project: A qualitative approach to self-medication. *Cad. Saude Publ.* 2004, 20, 1661–1669.

Self-medication can occur through the consumption of industrialized or manipulated medicines, or through the use of home remedies (teas, herbs, etc.) and includes a variety of activities such as acquiring medicines without a prescription, resubmitting old prescriptions to purchase medicines, sharing medicines with relatives or members of one's social circle, using leftover medicines stored

at home, or failing to comply with the professional prescription, either by prolon or by failing to comply with the professional prescription. Economic, political, and cultural factors have all contributed to a global increase in self-medication, making it a major public health issue. Despite the fact that there are several pharmaceuticals on the market, this does not imply an improvement in quality. This fact should be weighed against the implications of economic globalization for government social investments. Access to public health care becomes more difficult in developing countries, exacerbated by insufficient and poorly distributed and managed resources, as well as a lack of control over pharmaceutical product development, distribution, and commercialization.

2.4 Babu, M.M. Factors contributing to the purchase of over the counter (OTC) drugs in Bangladesh: An empirical study. Int. J. Third World Med. 2008, 6, 9–24.

Over-the-counter medications and nutritional supplements are the most commonly self-medicated substances. In addition to analgesics, antimalarials, antibiotics, and cold syrups are occasionally used for self-administration. Some psychoactive substances, such as recreational drugs, alcohol, and comfort foods, are used to self-medicate to relieve symptoms of mental agony, worry, and concern. Self-medication is becoming more popular over the world, with emerging countries having a high prevalence rate. According to certain research, Asia has a 4-7.5% amplitude of antibiotic self-prescribing, which is higher than Northern Europe's 3%. Although, when done correctly, self-medication can save patients time and money in areas where professional therapy is expensive and difficult to obtain, there are some substantial health risks. It has the potential to waste resources, build disease resistance, and cause serious health issues such as adverse medication reactions, addiction, and death.

CHAPTER THREE

AIM & OBJECTIVE

3.0 Aim and Objective

3.1 Aim

The aim of this study is to examine the knowledge, attitudes, and practices related to self-medication among rural people in Bangladesh. The study aims to explore the prevalence of self-medication, common health issues for which self-medication is practiced, types of medications used, sources of medication information, awareness of risks, and perception of healthcare availability.

3.2 Objective

- Determine self-medication prevalence among rural people in Bangladesh.
- Identify common health issues for self-medication in rural communities.
- Assess types of medications commonly self-administered in rural areas.
- Explore sources of medication information relied upon for self-medication.
- Evaluate awareness of potential risks and adverse effects associated with self-medication.

CHAPTER FOUR

METHODS & MATERIALS

4.0 Methods and Materials

4.1 Study Design

This study employed a cross-sectional survey design to gather data on self-medication practices among rural people in Bangladesh. The survey questionnaire was developed to assess various aspects related to self-medication, including prevalence, common health issues, types of medications used, sources of medication information, awareness of risks, and perception of healthcare availability.

4.2 Participants

A total of 200 participants were recruited for the study using a random sampling technique. Efforts were made to ensure diversity in the sample by including individuals from different age groups, occupations, and educational backgrounds. Participants were selected from rural areas across different regions of Bangladesh to capture a broad representation of the rural population.

4.3 Data Collection

Data collection was conducted using a structured questionnaire developed specifically for this study. The questionnaire consisted of multiple-choice questions and checkboxes to gather both quantitative and qualitative data. Prior to data collection, ethical approval was obtained from the relevant authorities, and informed consent was obtained from each participant. Data collection took approximately from May 3, 2023 to June 3, 2023.

4.4 Data Analysis

The collected data were analyzed using statistical software. Descriptive statistics, including frequencies and percentages, were used to summarize the data and report the prevalence of self-medication, common health issues, types of medications used, sources of medication information, awareness of risks, and perception of healthcare availability.

CHAPTER FIVE

RESULTS

5.0 Result

5.1 Demographic Information

Gender:

Among the participants, 55% were male and 45% were female. This distribution indicates a slightly higher representation of males in the survey.

Age:

The age distribution reveals that the largest group of participants falls within the 26-35 age range, representing 30% of the total participants. The 18-25 age group constitutes 20% of the participants, while the 36-45 and 46-55 age groups account for 27.5% and 15% respectively. The 55 and above age group represents 7.5% of the participants.

Occupation:

The majority of participants in the survey were farmers, accounting for 45% of the total participants. Laborers represented 20% of the participants, followed by homemakers at 17.5%. Students accounted for 10% of the participants, while businesspersons comprised 5%. The remaining 2.5% of participants fell into the "other" category, representing various occupations not specified in the given options.

Education Level:

The majority of participants had completed at least primary or secondary school education, with 30% having completed secondary school and 20% having completed higher secondary school and 20% having completed primary school. Additionally, 12.5% had no formal education, on other hand 12.5% had pursued College/University. while 5% had achieved postgraduate or above qualifications.

Characteristics	Factor	Percentage
Gender	Male	55%
	Female	45%
Age	18-25	20%
	26-35	30%
	36-45	27.5%
	46-55	15%
	55 and above	7.5%
Education	No Formal Education	12.5%
	Primary Level Education	20%
	Secondary Level Education	30%
	Higher Secondary Level	20%
	Bachelor's Degree	12.5%
Occupation	Farmer	45%
	Laborer	20%
	Homemaker	17.5%
	Student	10%
	Businessperson	5%
	Other occupations	2.5%

Table-5.1: Demographic Characteristics of Respondents.

5.2 Self-Medication Practices

5.2.1 Practiced self-medication for treating minor health issues without consulting a healthcare professional

Among the participants, 77.5% reported practicing self-medication for treating minor health issues without consulting a healthcare professional. On the other hand, 22.5% stated that they have not engaged in self-medication.

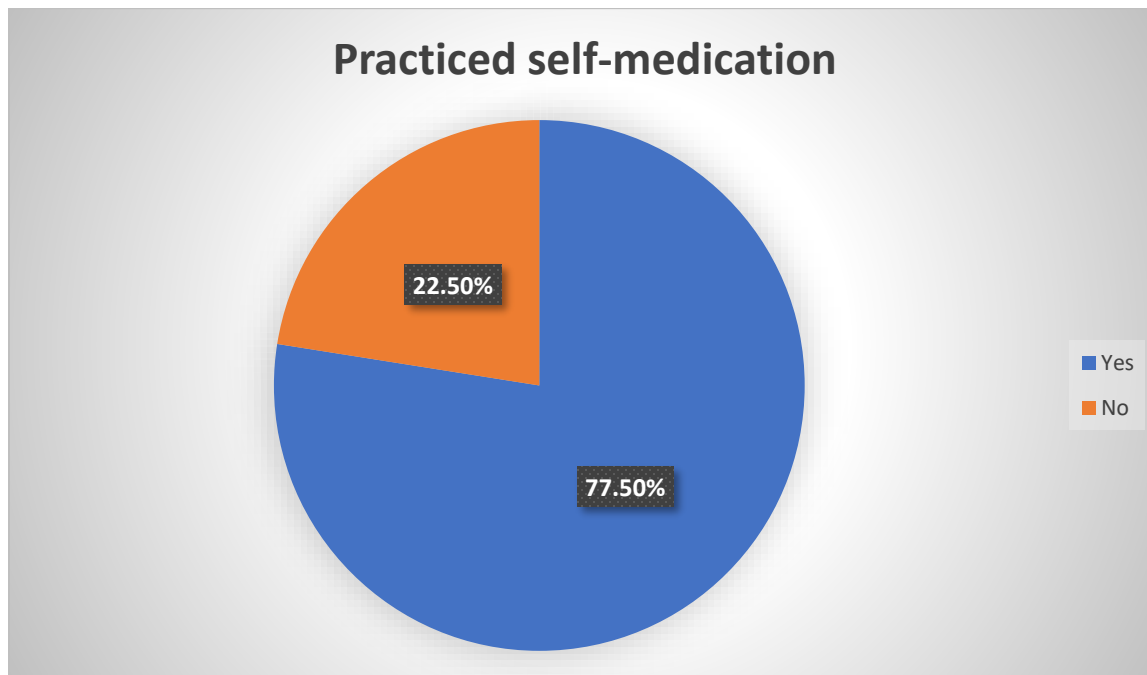


Figure-5.1: Pie chart of practiced self-medication for treating minor health issues without consulting a healthcare professional

5.2.2 Among the participants who reported practicing self-medication, the following health issues were reported for which they have self-medicated:

Based on the results, the most common health issue for which participants engaged in self-medication was headaches, reported by 83.87% of the self-medicated participants. Fever was the second most common health issue, reported by 70.97% of participants. Cough and cold symptoms were also prevalent, with 61.29% of participants self-medicating for them.

Stomachaches were reported by 45.16% of participants, while diarrhea, skin rashes, and allergies were reported by 25.81% and 16.13%, of participants, respectively. 9.68% mentioned other health issues for which they practiced self-medication.

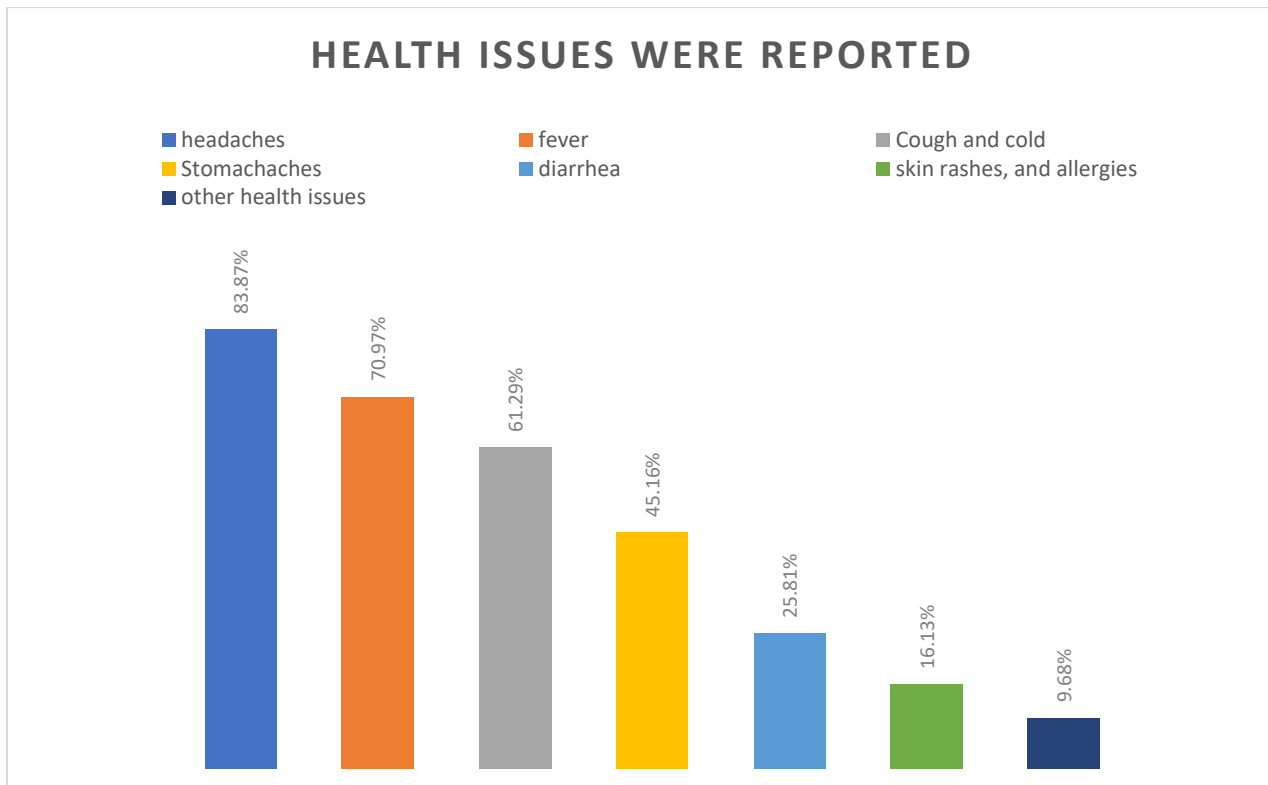


Figure-5.2: Graphical analysis of health issues were reported for which they have self-medicated

5.2.3 When participants who reported practicing self-medication (155 out of 200) were asked about the frequency of their self-medication practices, the following responses were obtained

The results indicate that 51.61% reported practicing self-medication frequently, which refers to engaging in self-medication at least once a month or more. 38.71% reported self-medicating occasionally, which includes a few times per year. reported engaging in self-medication rarely 19.35% and reported regularly 19.35%, which refers to once or twice a year or almost every day, respectively.

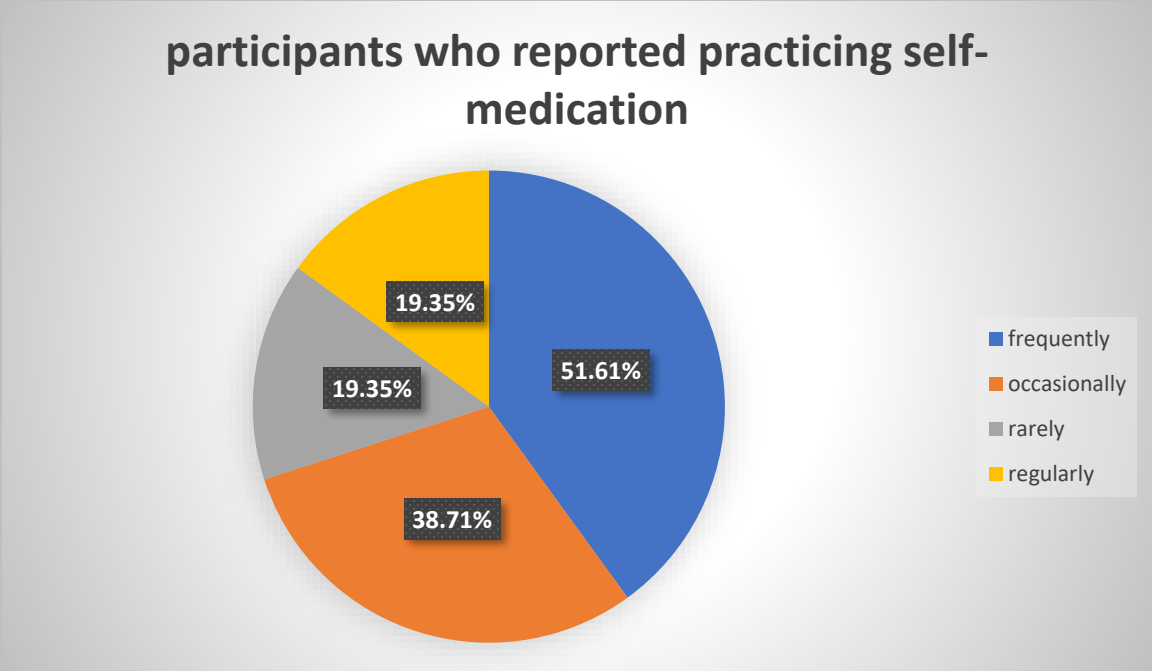


Figure-5.3: Pie chart of about the frequency of their self-medication practices

5.2.4 Among the participants who reported practicing self-medication, the following types of medications were commonly used

Based on the results, painkillers were the most commonly used medications for self-medication, with 90.32% of the participants reporting their usage. Cough and cold medicines followed closely behind at 58.06%. Antibiotics were used by 45.16% of participants, while antacids were used by 32.26% of participants.

22.58% reported using traditional or herbal remedies for self-medication. Additionally, 12.90% mentioned other types of medications they typically use for self-medication.

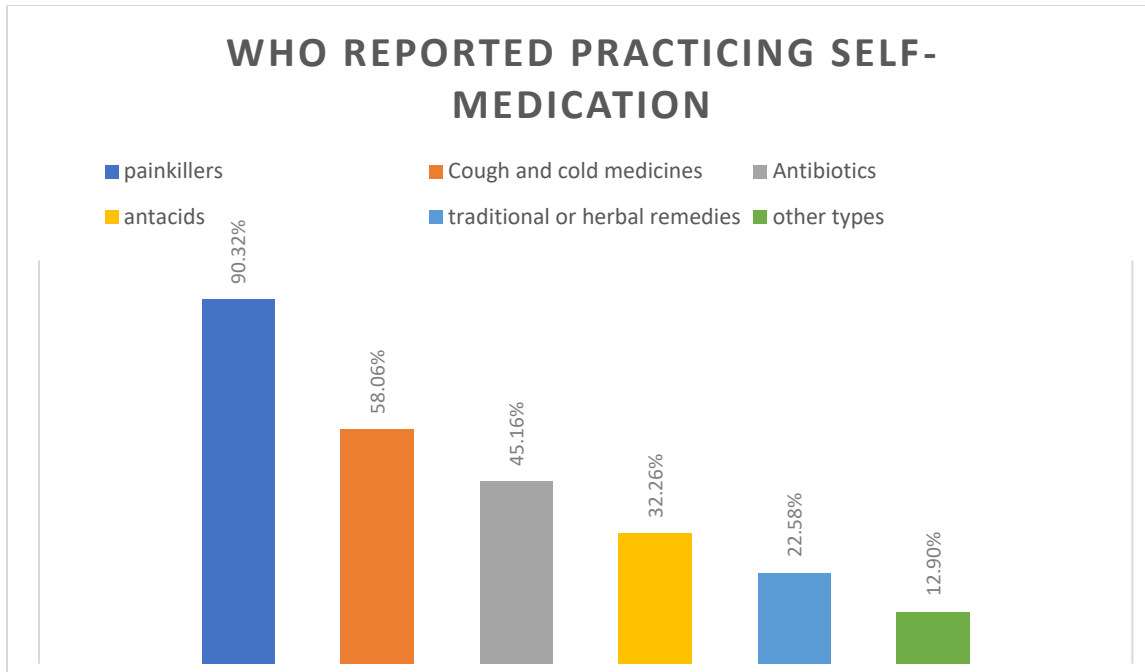


Figure-5.4: Graphical analysis of types of medications were commonly used

5.2.5 When participants who reported practicing self-medication were asked how they decide which medication to use, the following responses were obtained

The results indicate that 54.84% base their decision on previous experiences with similar symptoms. Suggestions from family or friends also play a crucial role, with 48.39% of participants considering them. Information obtained from the internet or media is relied upon by 29.03% of participants when making decisions about self-medication. Availability of medications at local pharmacies or shops is a factor for 45.16% of participants. 6.45% mentioned other factors that influence their decision-making process.

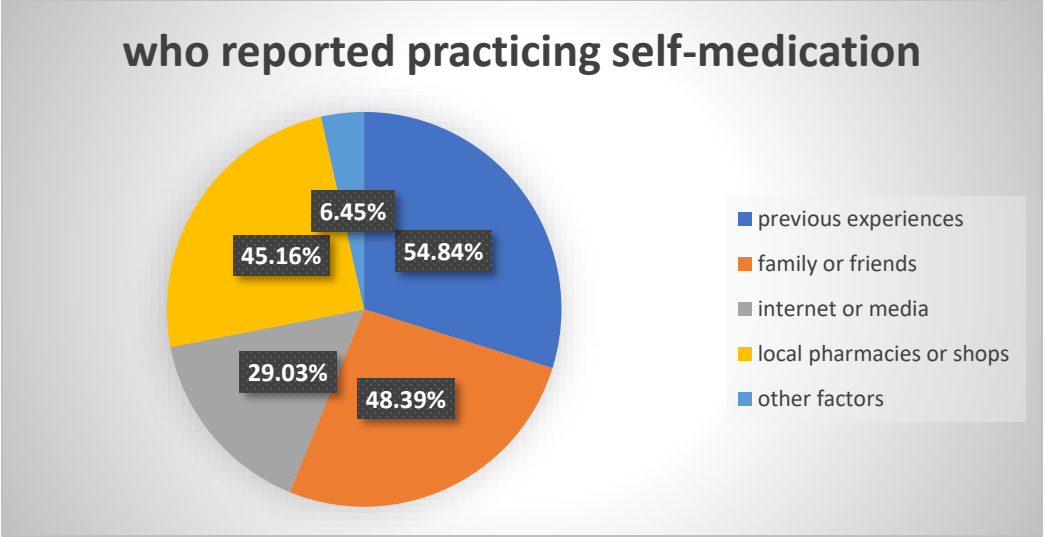


Figure-5.5: Pie Chart of how they decide which medication to use

5.3 Knowledge and Awareness

5.3.1 When participants were asked whether they believe self-medication is a safe practice, the following responses were obtained

The results indicate that 60% believe that self-medication is a safe practice. However, 32.5% expressed a belief that self-medication is not safe. 7.5% indicated uncertainty about the safety of self-medication.

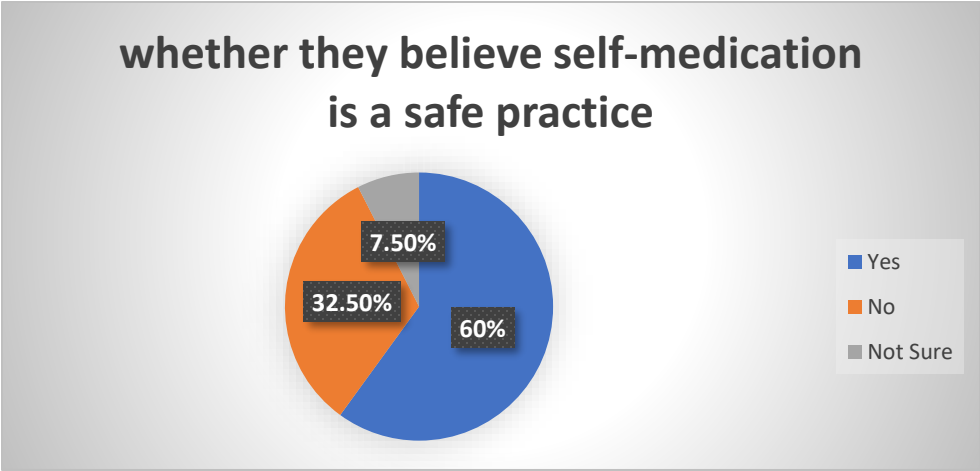


Figure-5.6: Pie chart of whether they believe self-medication is a safe practice

5.3.2 When participants were asked about their awareness of the potential risks or adverse effects associated with self-medication, the following responses were obtained

The results show that 55% reported being aware of the potential risks or adverse effects associated with self-medication. However, 30% stated that they were not aware of these risks. 15% mentioned being partially aware.

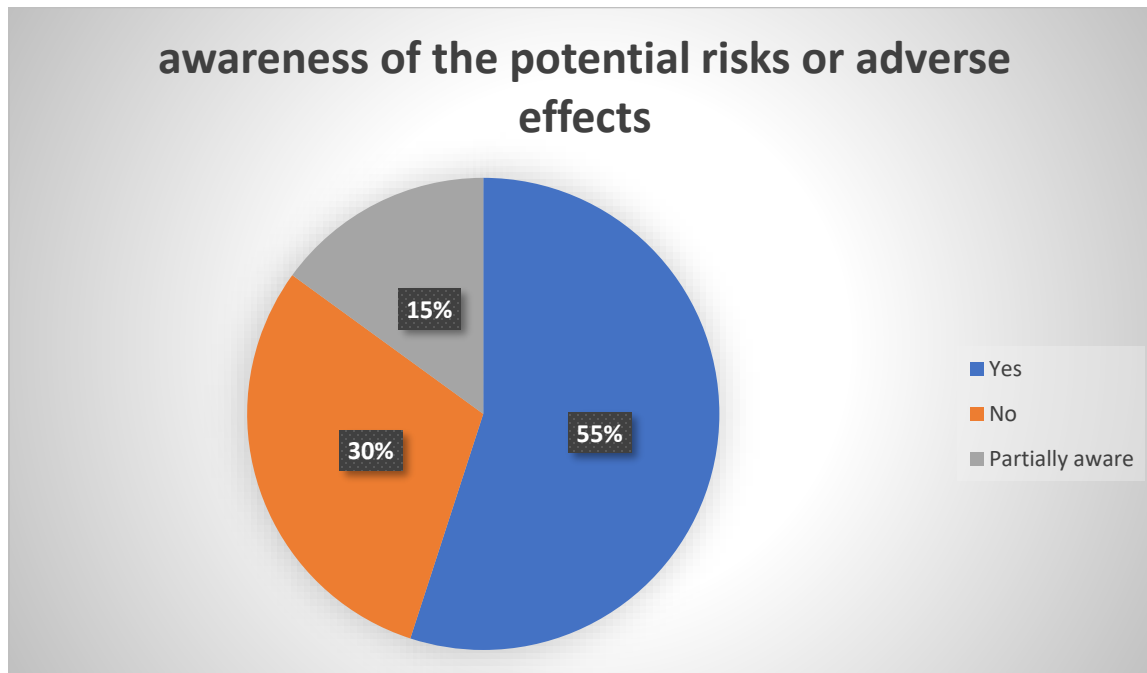


Figure-5.7: Pie chart of awareness of the potential risks or adverse effects associated with self-medication

5.3.3 When participants were asked whether they have received any information or education on responsible self-medication practices, the following responses were obtained

The results indicate that 27.5% have received information or education on responsible self-medication practices. 72.5% stated that they have not received such information or education.

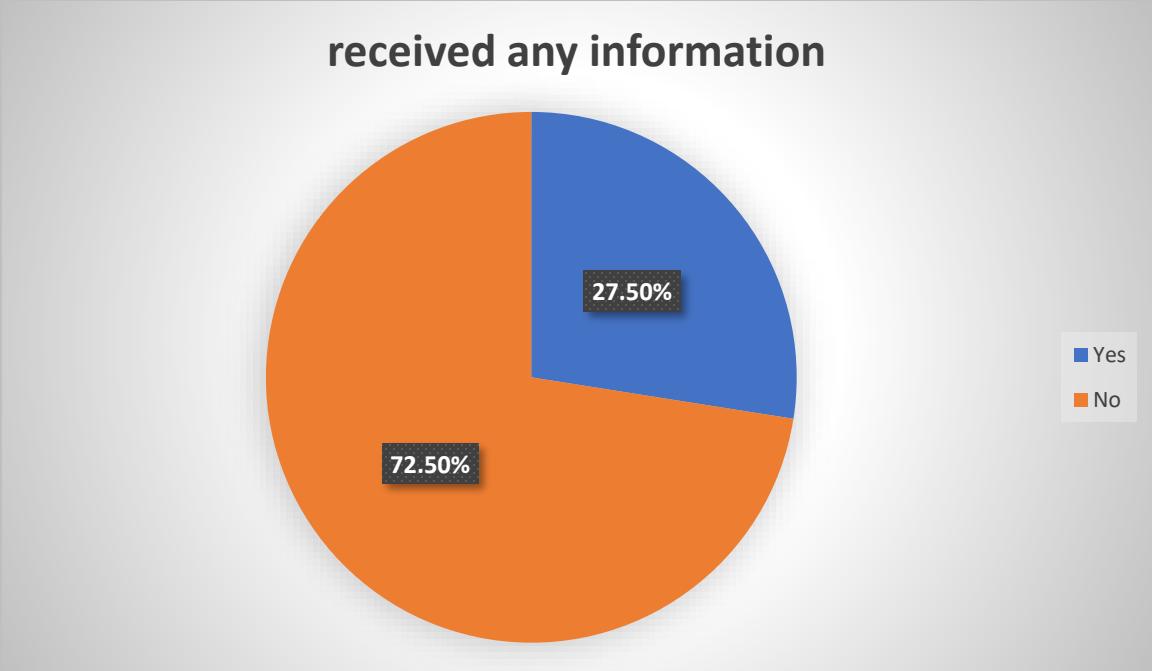


Figure-5.8: Pie chart of they have received any information or education on responsible self-medication practices

5.3.4 When participants were asked about how they acquire knowledge about medications and their appropriate use, the following responses were obtained

The results indicate that 45% acquire knowledge from healthcare professionals, including doctors and pharmacists. Family and friends also play a role in knowledge acquisition, with 32.5% of participants relying on them. Online sources, such as websites and social media, are utilized by 30% of participants for obtaining information. Television, radio, and other media sources contribute to knowledge acquisition for 15% of participants. 5% mentioned other sources for acquiring knowledge.

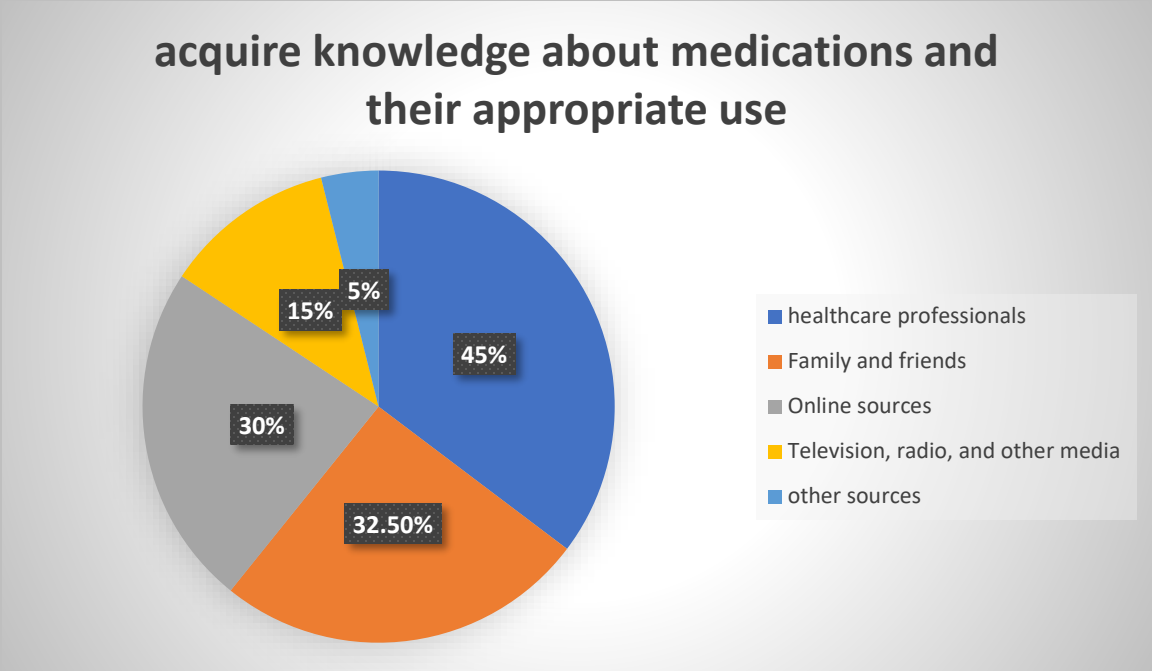


Figure-5.9: Pie chart of they acquire knowledge about medications and their appropriate use

5.4 Healthcare Access and Perception

5.4.1 When participants were asked about the main reasons for practicing self-medication instead of consulting a healthcare professional, the following responses were obtained

The results indicate that the cost of healthcare services is the most commonly cited reason for practicing self-medication, with 60% of participants indicating this as a factor. The lack of nearby healthcare facilities is mentioned by 35% of participants, while long waiting times at healthcare facilities are a concern for 30% of participants. Lack of trust in healthcare professionals is reported by 20% of participants. Convenience and time-saving are significant factors, as mentioned by 42.5% of participants. 7.5% mentioned other reasons for choosing self-medication over consulting a healthcare professional.

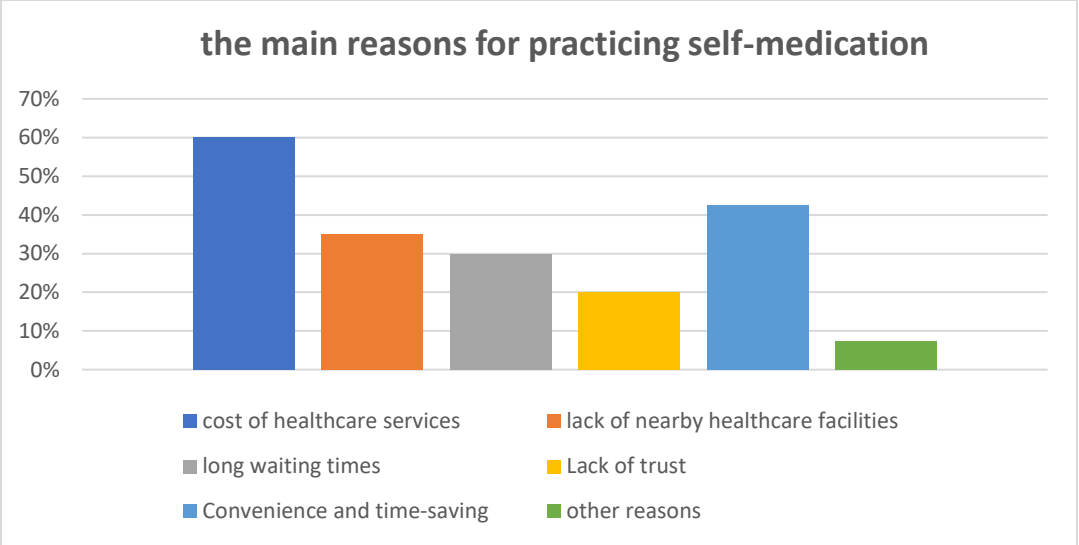


Figure-5.10: Graphical analysis of the main reasons for practicing self-medication instead of consulting a healthcare professional

5.4.2 When participants were asked to rate the availability of healthcare services in their area, the following responses were obtained

The results indicate that 47.5% rated the availability of healthcare services in their area as fair. 30% considered it to be good, while 15% rated it as poor. Only 7.5% rated the availability as excellent.

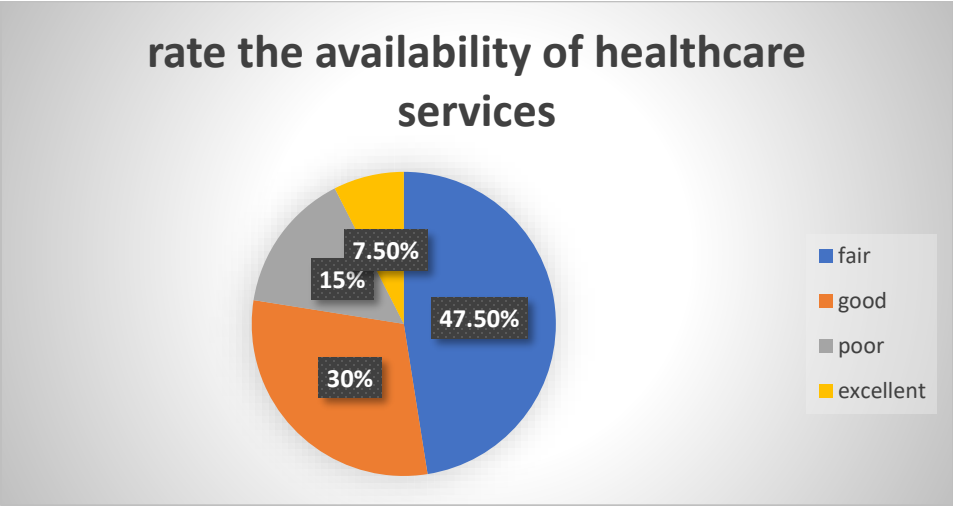


Figure-5.11: Pie chart of the availability of healthcare services in their area

CHAPTER SIX

DISCUSSION

6.0 Discussion

The findings of the survey on self-medication among rural people in Bangladesh provide valuable insights into the prevalent practices and associated factors. The results indicate that self-medication is a common phenomenon among the surveyed population, with a majority of participants engaging in self-treatment for minor health issues. Headaches, fevers, and cough/cold symptoms were the most common health issues for which individuals resorted to self-medication. Painkillers, such as paracetamol and ibuprofen, were the most commonly used medications. The reliance on healthcare professionals, family and friends, and online sources for medication information highlights the importance of disseminating accurate and reliable information. Cost of healthcare services and lack of nearby healthcare facilities were identified as the primary reasons for self-medication, indicating the need to address accessibility challenges. While a significant number of participants believed self-medication to be safe, awareness about potential risks and adverse effects varied. The perceived availability of healthcare services was predominantly rated as fair, indicating room for improvement.

Overall, these findings emphasize the need for targeted education and awareness programs to promote responsible self-medication practices. It is crucial to empower individuals with accurate information about appropriate medication use, potential risks, and the importance of professional healthcare. Efforts should be made to enhance the availability and accessibility of healthcare services, particularly in rural areas, to reduce the reliance on self-medication. Policymakers and healthcare providers should collaborate to address the economic barriers and geographical limitations that hinder access to professional healthcare. By addressing these issues and promoting safe self-medication practices, individuals can make informed decisions about their health, leading to better health outcomes and overall well-being in rural communities in Bangladesh.

CHAPTER SEVEN

CONCLUSION

7.0 Conclusion

The survey findings on self-medication among rural people in Bangladesh indicate that it is a widespread practice for treating minor health issues. Headaches, fevers, and cough/cold symptoms were the most common ailments for which individuals engaged in self-medication. Painkillers, such as paracetamol and ibuprofen, were commonly used for self-treatment. Healthcare professionals, family and friends, and online sources were identified as the main sources of medication information.

The reasons for practicing self-medication included the cost of healthcare services and the lack of nearby healthcare facilities. The perceived availability of healthcare services was generally rated as fair. While some participants believed self-medication to be safe, awareness about potential risks varied among the surveyed population.

To promote responsible self-medication practices, there is a need for targeted education and awareness programs. Providing accurate information about appropriate medication use, potential risks, and the importance of seeking professional medical advice is crucial. Enhancing healthcare accessibility, reducing the cost of healthcare services, and improving the availability of healthcare facilities are also necessary to reduce reliance on self-medication.

The findings highlight the need to address the challenges associated with self-medication in rural areas of Bangladesh. By promoting informed decision-making, improving healthcare access, and enhancing awareness about the risks and benefits of self-medication, individuals can make better choices regarding their health and well-being.

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