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ASSESSMENT OF SELF-MEDICATION FOR URTIs AMONG CHILDREN IN TEMA EAST SUB-METRO IN THE TEMA METROPOLITAN ASSEMBLY.

BY

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THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE MASTER OF PUBLIC HEALTH (MPH) DEGREE.

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DECLARATION

I hereby declare that with the exception of references made of other people's work which have been duly cited in the study, this report is the result of my own research work and that it has not been submitted either in whole or part to any other institution for another degree.

ACADEMIC SUPERVISOR

……

PROF MOSES AIKINS

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DEDICATION

I dedicate this work to my family in recognition of their prayers, encouragement and support for me throughout my study.

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LIST OF ABBREVIATIONS

ARI	Acute Respiratory Infection
CCM	Cough and Cold Medications
GHSERC	Ghana Health Service Ethics Review Board
MoH	Ministry of Health
NHIS	National Health Insurance Scheme
OECD	Organization for Economic Co-operation and Development
OTC	Over- the-Counter
TGA	Therapeutic Goods Administration
URTIs	Upper Respiratory Tract Infections
USA	United States of America
WHO	World Health Organization
WSMI	World Self Medication Industry

DEFINITION OF TERMS

Self-medication	Taking of medications without approval from medical professional
Over-the-Counter medicines	Over-the-counter (OTC) medicine is a product that can be purchased from pharmacies without a prescription
Prescribed medicine	Prescribed medicine is a product that may be dispensed from a pharmacy only with a prescription from a physician
Responsible self-medication	Responsible self-medication has been defined as the healthcare assumed by the patient where he or she has a greater degree of responsibility in the management of a symptom or illness, using a pharmaceutical product available over-the-counter (OTC)
Irresponsible self-medication	This is the inappropriate drug use which involves taking inadequate doses, sharing medicines, a short duration of treatment, and stopping treatment upon the improvement of disease symptoms

ABSTRACT

Introduction: The burden of URTIs is common in children due to their weak immune systems leading to persistent morbidities such as pneumonia which increases the risk of mortality levels among children below five (5) years. The long hours spent at the health center discourages some care-givers from seeking professional help to diagnose and treat their children who are suffering from URTIs. Most caregivers therefore consider URTIs as minor ailments thus, they resort to home remedies using herbal medicines or antibiotics purchased Over the Counter (OTC). The aim of this study is to determine the prevalence of self-medication and the factors that influence self-medication among children less than five years in the Tema East sub- metropolis.

Methods: Descriptive cross-sectional design was used with selected sample of 151. Parents/caregivers were randomly selected. Structured-questionnaire was used for data collection. Descriptive and logistic regression analyses was used.

Results: The response rate was 83.4%. The overall prevalence of self-medication was 78.6%. Responsible and irresponsible self-medication were 41.4% and 58.6% respectively. Socio-economic factors were not significantly associated with self-medication. Provider factors was 0.1 times more at odds with self-medication among parents/caregivers than personal/household/social and media factors.

Conclusion: This study concludes self-medication was high in the Tema East Sub-Metro especially irresponsible self-medication. This was mainly influenced by provider factors and not socio-economic factors.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

Self-medication, as a concept, has gained collective recognition worldwide. It generally encourages individuals to treat petty illnesses with effective and simple therapies and often preferred for combating the symptoms of diseases quickly. The World Health Organization (WHO, 2000) has defined self-medication as *"the use of drugs to treat self-diagnosed disorders/symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent diseases/symptoms"*. Generally, this working definition effectively defines the very essence of self-medication. Self-medication is generally categorised into two forms, namely, responsible self-medication and irresponsible self-medication. Responsible self-medication involves treatment of self-diagnosed diseases and symptoms using drugs that are approved and properly used (Hughes, McElnay & Fleming (2001). On the other hand, irresponsible self-medication, according to Skliros et al (2010), involves taking inadequate doses, sharing medicines and stopping treatment upon improvement of disease symptoms. In addition, irresponsible self-medication is generally about using drugs to cure diseases, especially without medical advice.

The World Self Medication Industry (WSMI) has identified self-medication as a major antidote for treating common illnesses which do not necessitate the doctor's visit (Klemenc-Ketiš, Hladnik & Kersni, 2010). As further observed by WHO (2000), self-medication plays "an important role in healthcare" and enhances "people's education, general knowledge and socio-economic status". It is widely known that many healthcare systems worldwide have adopted self-medication in view of its benefits.

Self-medication can contribute greatly in enhancing the health status of people. However, there is cause for concern, especially in the absence of a regulatory and legal framework to manage the practice of self-medication. For instance, WHO (2000) asserts that those who practice self-medication may obtain Over-The-Counter (OTC) drugs through self-prescription with a patient information leaflet but without instructions on drug use. This assertion confirms concerns raised about the irrational purchase and use of drugs, most especially in developing countries. Shanker, Partha and Shenoy (2002) observes that the proportion of drugs used for self-medication is higher than the use of prescribed drugs and this is usually due to the availability of a wide range of drugs and inadequate health services.

Self-medication, though beneficial, has significant downside risks. One of the dangers of self-medication is the risk of worsening the pathology of an existing illness. Ameko, Achio and Alhasaan (2012) revealed that "*pathogens isolated from the urine of patients who self-medicated indicated a high percentage of resistance than those isolated from urine samples of patients who did not self-medicate prior to the test*". In addition, inappropriate practice of self-medication as a result of inadequate knowledge of the efficacy of a drug could lead to the occurrence of several health conditions, most especially in lactation and during pregnancy (Shankar, Partha & Shenoy, 2002: Murray, Callahan, 2003).

One of the factors that influence self-medication challenges is the prevalence of Over-The-Counter drugs. A study conducted in America indicated that 60% of self-treatment of ailments without professional help involved OTC drugs (Dabney, 2001). It is possible that the prevalence of OTC drugs is even higher in developing countries. As asserted by Khan (2011), about 60-80% of health problems are treated through self-medication as a lower cost alternative in most

developing countries, including Ghana. It is public knowledge that OTC drugs are everywhere in Ghana due to proliferation of pharmacies and chemical shops.

A number of studies have indicated that Upper Respiratory Tract Infections (URTIs) are the primary reason for self-medication. Research conducted in the United States of America and Europe also showed that self-medication is particularly well-known for colds and other URTI's (Grigoryan et al, 2008). A report by the World Health Organization (WHO) revealed that "more than 50% of antibiotics worldwide are purchased privately from pharmacies or street vendors in the informal sector" without a prescription (Cars & Nordberg, 2005). It is also believed that self-medication is influenced mainly by OTC dispensing in pharmacies and past prescription drugs. As posited by Nichol, D'Heilly and Ehlinger, (2006), this occurs mostly in developing countries since the use of antibiotics without medical guidance is largely facilitated by inadequate regulation and sale of prescription drugs.

Children form one of the major consumers of health care services in several developing countries and is usually reflected in their medication use (Santos, Barreto & Coelho, 2009). A study conducted by Cruz et at (2014) showed that self-medication among children is usually based on the assessment of the value, function and adaptation of the use of the drug in adults. Another study conducted in Brazil revealed a 56% prevalence of self-medication among children particularly those below two years of age. Some caregivers also resort to self-medication due to the lack of access to medical care. In a study conducted in six (6) Latin American countries, WHO (2000) showed that a "high percentage of drugs were being dispensed without medical prescription or follow-up and this was attributed to lack of access to medical care".

1.2 PROBLEM STATEMENT

Upper Respiratory Tract Infections (URTIs) are the most prevalent infections in several communities that cause about four (4) million deaths among children yearly, with majority of such deaths occurring in lower middle-income countries (Abdel-Salam & Abdel-Khalek, 2016). Children are at a higher risk of these infections due to their low immunity to infections leading to reduced activity days, school, work loss, school performance and increasing healthcare utilization (Nichol, D'Heilly & Ehlinger, 2008). The frequency of URTIs in children under-five years imposes excessive burden on parents, care givers and health care services with regards to the amount of time and money spent for diagnosis and treatment (WHO, 2000). Most parents and caregivers therefore self-diagnose and resort to self-medication practices by acquiring antibiotics from pharmacies, street vendors, or using left over drugs to treat children showing signs and symptoms of URTI such as common cold and otitis media.

Care provided to children by caregivers, family and parents through self-medication may not be the most efficient way to treat URTIs. This very often leads to complications and other additional problems such as adverse drug reactions leading to hospital admissions of these children (Olivier et al., 2009; Lewinski et al., 2010), excessive and improper use of antibiotics (overuse/underuse), which is one of the causes of child mortality and bacterial resistance to drugs (Montasser, Helal & Rezq, 2012). Furthermore, caregivers use drugs without prescriptions in treating their children under five years with URTIs due to the misconceptions and misunderstandings about the appropriate applications and effectiveness of antibiotics.

Self-medication has been studied as a concept by Ameko, Achios and Alhassan (2012), Osemene and Lamikanra (2012) and WHO (2000). However, the researcher submits that very few studies have been conducted on the factors influencing self-medication for URTI among children under

five (5) years old in the Tema East sub-metropolis of the Greater Accra Region of Ghana. This study therefore seeks to determine the prevalence and factors of self-medication for URTIs among children under five (5) years old in the Tema East sub-metropolis in order to propose interventions that could contribute to reducing child mortality due to self-medication. The findings of the study could also be used by policy makers in formulating policy interventions to curtail self-medication among children as well as guide caregivers and service providers in mitigating self-medication for URTIs among children under five years.

1. 3 OBJECTIVES

1.3.1 General objective:

The general objective of the study is to assess self-medication for URTI among children in the Tema Metropolitan Assembly.

1.3.2 Specific objectives:

The specific objectives are:

1. To determine the prevalence of responsible self-medication for URTI among children less than five years in the Tema Metropolis
2. To determine the prevalence of irresponsible self-medication for URTI among children less than five years in the Tema Metropolis
3. To determine the prevalence of overall self-medication for URTI among children less than five years in the Tema Metropolis
4. To determine the factors influencing self-medication among children less than five years in the Tema Metropolis

1.4 RESEARCH QUESTIONS

1. What is the prevalence of responsible self-medication for URTI among children less than five years in the Tema Metropolis?
2. What is the prevalence of irresponsible self-medication for URTI among children less than five years in the Tema Metropolis?
3. What is the overall prevalence of self-medication for URTI among children less than five years in the Tema Metropolis?
4. What are the factors influencing self-medication among children less than five years in the Tema Metropolis?

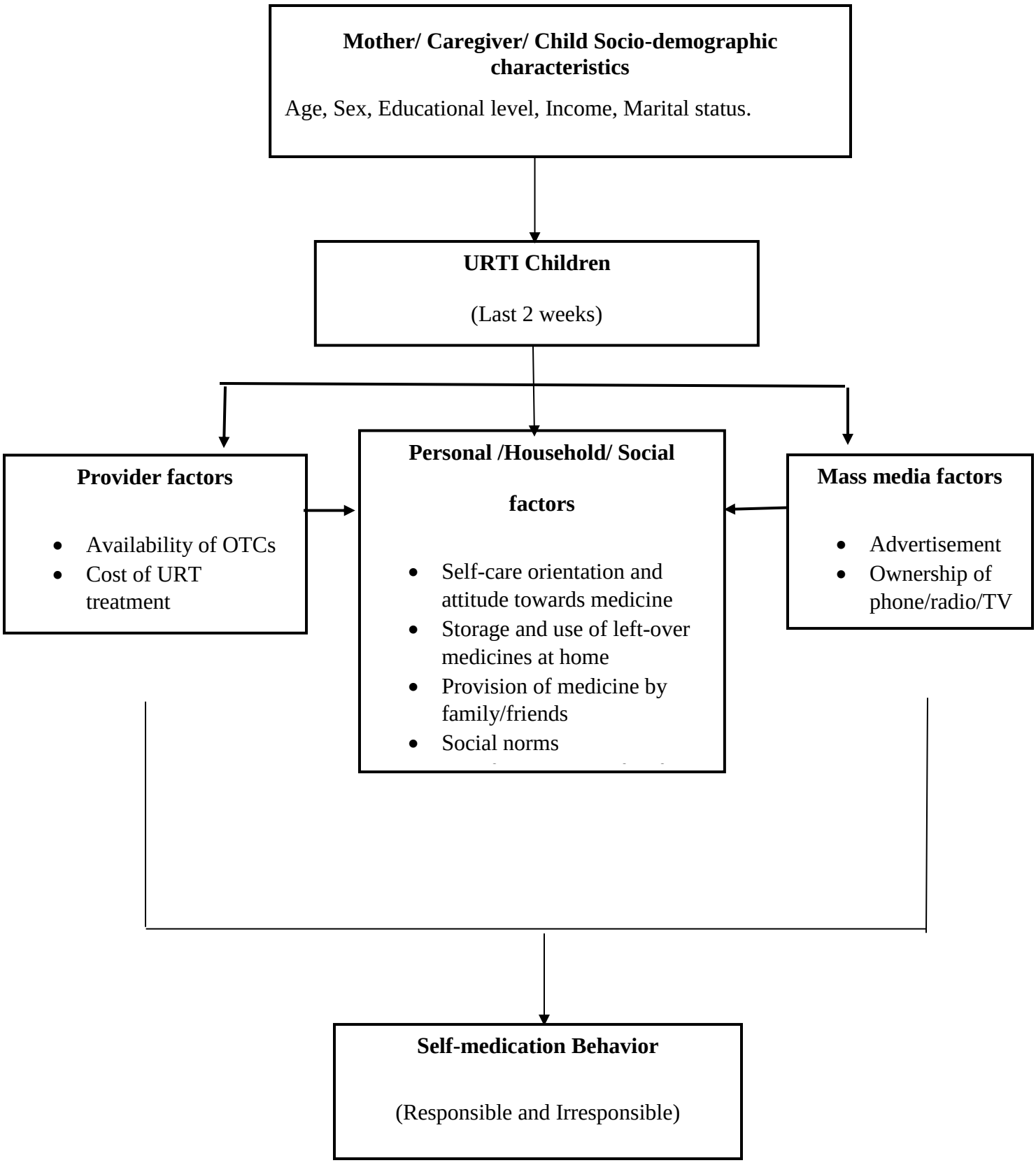
1.5 JUSTIFICATION

The issue of self-medication among children represents an emerging topic in the scientific research (Gualano et al., 2015). Studies have shown that there are risks and potential harm that can be caused by self-medication, yet self-medication among children is commonly reported to be prevalent and common pediatric OTC medications, such as cough and cold medicines (CCM) can lead even to serious adverse drug effects among self-medicating children (Du & Knopf, 2009). The phenomenon of self-medication of children is even widespread in developing countries such as Ghana. Therefore, an assessment of the extent of self-medication among children with upper respiratory infections in the Tema East Sub-metro will determine the prevalence of the phenomenon of self-medication of children and the factors driving this practice. This will provide baseline information to enable preventive measures to be taken in order to curb the practice.

1.6 CONCEPTUAL FRAMEWORK

Self-medication of children primarily occurs through adult members of the family such as the biological parents or through other care takers. It is dependent upon several factors emanating from the persons responsible for the healthcare needs of the child. This shows that factors at the level of the parents can directly influence self-medication of children. As a result, socio-demographic factors of the parents such as educational level, age as well as occupation can influence the healthcare decisions taken in respect of the healthcare needs of the child. Also, geographical access to health services has the potential to influence self-medication of children by their parents.

Figure 1.1 Conceptual framework of self-medication among under-five children



Additionally, the economic status of the parents in terms of the income level of the family as well as availability of valid NHIS card can influence the self-medication of children since the ability of the parents to seek for medical consultation in the healthcare facility will depend largely on their economic status. Other factors of self-medication among children under five years with URTI include the mass media (advertisement, ownership of radio/TV), individual/household factors (provision of medicine by family and friends), provider factors (cost of URTI treatment and availability of OTC drugs) play a significant role in influencing the practice and prevalence of self-medication among children under-five years.

CHAPTER TWO

LITERATURE REVIEW

2.1 THE CONCEPT OF SELF-MEDICATION

2.1.1 Definition of Self-Medication

There is no one single definition of self-medication even though many attempts have been made to define it. Self-medication has been defined variously in literature. Osemene and Lamikanra (2012) define self-medication as *"the use of drugs with therapeutic intent but without professional advice or prescription"* or *"the use of nonprescription medicines by people on their own initiative"*. It is worthy to note that these definitions of self-medication seem too simplistic and limits the scope of the term. It is the World Health Organisation's (WHO) definition of self-medication that adequately defines the very essence of self-medication. Broadly speaking, self-medication as defined by WHO (2000) is *"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 and involves obtaining medicines without a prescription, resubmitting old prescriptions to purchase medicines, sharing medicines with relatives or members of one's social circle, or using leftover medicines stored at home".* This working definition casts a wider net in identifying and classifying self-medication practices. Pfaffenbach, Tourinho and Bucaretchi (2010) further broaden self-medication practices to include "*disrespecting the medical prescription either by prolonging or interrupting the dosage and the administration period prescribed*".

However, care provided to children by caregivers, family and parents through self-medication is usually improper and not the most efficient way to treat URTIs. This very often leads to complications and other additional problems such as adverse drug reactions leading to hospital

admissions of these children (Olivier et al, 2009; Lewinski, 2010), excessive and improper use of antibiotics (overuse/underuse), which is one of the causes of child mortality and bacterial resistance to drugs (Montasser, Helal & Rezq, 2012). Furthermore, caregivers use drugs without prescriptions in treating their children under five years with URTIs due to the misconceptions and misunderstandings about the appropriate applications and effectiveness of antibiotics.

Hughes, McElnay & Fleming (2001) pointed out that previous symptom of disease, sociocultural and socioeconomic features, attitude towards a disease, how healthcare is funded and the availability of medical products as some factors that influence self-medication among caregivers of children under five years with URTIs. Another study conducted by Lukovic et al (2014) revealed that age, educational levels, previous experience with the symptoms or disease, economic condition of individuals, home kept prescription drugs, significance attributed to the disease and family attitudes influence self-medication (WHO, 2000; Klemenc-Ketis & Kersnik (2010). The mass media has also been identified as a major factor influencing self-medication for URTIs among children under five years. Constant advertisement of drugs on social media, print media, television and radio contribute to the increase in demand for non-prescribed drugs, OTC drugs and locally prepared drugs such as herbal medicines and other concoctions believed to guarantee the wellbeing of children under five years with URTIs. According to the WHO (2000), the increase in competitive promotion of self-medication products has contributed greatly enhanced consumer awareness of the availability of the products and eventually boosts demand. The safety and quality of these products being promoted and sold via the internet could therefore not be guaranteed, putting individuals, particularly children at risk of morbidity and mortality.

2.2 Types of self-medication

Two forms of self-medication have been generally identified in literature which are responsible and irresponsible self-medication.

2.2.1 Responsible self-medication

According to Hughes, McElnay and Fleming (2001), responsible self-medication refers to "*the healthcare assumed by the patient where he or she has a greater degree of responsibility in the management of a symptom or illness, using a pharmaceutical product available OTC"*. Shehnaz, Agarwal and Khan (2014) show that responsible self-medication involves *"treatment of self-recognized disorders or symptoms, through the use of medicines that are approved, available without prescriptions OTC drugs, and are considered relatively safe and effective when used as directed"*. Responsible self-medication is also synonymous with rational use of drugs. According to the World Health Organization (WHO), "*the rational use of drugs occurs when the patients receive adequate medications for their clinical diagnosis, in doses corresponding to their individual requirements, at the lowest possible cost for the individual and society*" (Pfaffenbach et al., 2010). This suggests that prescribing professionals have a role to play in fostering responsible self-medication by ensuring that medications are prescribed appropriately to leave no room for left over medications. Responsible self-medication among children is solely ensured by the parents or individual responsible for the healthcare needs of the child since decisions regarding treatment of any condition of the child is taken by them. In developing countries with limited resources and healthcare access, some governments encourage citizens to engage in responsible self-medication of minor illnesses as such a practice is seen as "an opportunity to take responsibility and to manage their own health" (Gualano et al., 2015).

2.2.2 Irresponsible, Non-rational or Inappropriate self-medication

Irresponsible self-medication has also been identified as *"taking inadequate doses, sharing medicines, a short duration of treatment, and stopping treatment upon the improvement of disease symptoms"* (Skliros et al., 2010). Gualano et al (2015) highlighted that practice takes place in varying ways and includes all such instances where "medicines are provided by other people, generally relatives, friends or colleagues, who share both the drugs and the knowledge about their use, and who always lend old prescription to buy new medicine without consulting a doctor in order to know if the active principle is appropriate". A systematic review and meta-analysis of household antimicrobial self-medication in developing countries revealed that the most common inappropriate practice in nonprescription use of antimicrobial agents include: short duration of treatment mostly less than five days, insufficient dose of medication, wrong indication (use of antibacterial drugs in treating viral infections), and exchange/sharing of medicines (Ocan et al., 2015).

Generally, in using non-prescription drugs, the patient is responsible for drug usage or seeking medical advice, especially when the illness does not improve (Ocan et al., 2014). But in irresponsible self-medication, this responsibility is sometimes not observed. It is believed that inappropriate drug use correlates with high illiteracy levels in developing countries. In addition, inadequate information for drug usage as well as challenges in regulation of drug supply and dispensing in developing countries contribute to irresponsible self-medication which predisposes patients to drug interactions, masking symptoms of underlying disease and development of resistance especially with the antimicrobial drugs (Mehta et al., 2007; Okeke, Klugman & Bhutta, 2005).

2.3 Prevalence of self-medication among children

Self-medication is a "common practice" in many health care systems worldwide (Ocan et al., 2014). Lilja et al (2008) indicates that self-care as a form of self-medication is basically used to treat minor self-limited conditions. In an estimated 90% of cases, "people treat their symptoms with self-medication" (Ahonen 2008). Across all settings, as revealed by WHO (2000), healthcare systems realise that more than 50% of all medicines prescribed, dispensed, or sold are being used irresponsibly. The widespread nature of self-medication extends to children who are often self-medicated by their parents, family members and other caretakers. Compared to adults, self-medication is likely to be high in children due to their vulnerability to sickness owing to their underdeveloped immune system. For instance, Bham, Saeed and Shah (2016) highlight that the average Acute Respiratory Infections (ARI) experience of child is 6-8 spells in a year worldwide and "OTC drugs are frequently administered by parents to their children as ARI causes discomfort and distress to the parents".

Research has shown that the pattern of illness of children, who tend to be the primary users of healthcare services in developing countries, is reflected in medication use which may induced by the media and performed without indication and medical prescription (Santos, Barreto, & Coelho, 2009). In Brazil, "approximately 80 million people practice self-medication, and the risk of this practice is correlated with the level of education and information about drugs, as well as the accessibility of medications in the health system" (Cruz et al, 2014).

In Australia, "common cold contributes to a high burden of disease in the general population despite its minor and temporary effect" (Chen & Kirk, 2014) and "its high prevalence and notable impact on quality of life of people generates an economic burden greater than any other clinical condition" (Fendrick, Monto, Nightengale, & Sarnes, 2003). Further studies revealed that

"the common cold is typically managed through self-care, comprising use of antihistamines, antitussives, mucolytics/expectorants and decongestants and more than 40% of parents in Australia purchase OTC cough and cold medicines for their children" in Australia (Kloosterboer et al., 2015). However, rare evidence exists to confirm that "the efficacy of these medicines and OTC symptomatic medications for cough and cold raise particular concerns as a result of their potential undesirable effects (Smith, Schroeder, & Fahey, 2012).

Furthermore, in a study to assess self-medication among children and adolescents, 403 population-based study articles were reviewed. The findings suggest that self-medication among children was highly prevalent with the frequencies of self-medication ranging from seven to 7-67% (Pfaffenbach et al., 2010). Moreover, Vernacchio, Kelly, Kaufman, and Mitchell, (2008) investigated cough and cold medication use by US Children from 1999–2006. The response rate to the survey during the period 1999– 2006 was 61.9%, and 4267 individuals who were aged 0-17 years were enrolled with a median age of 9 years. Of the 4267 children surveyed, 439 had used a CCM in the previous week, for a weighted prevalence of use of 10.1% (95% confidence interval [CI]: 9.2–11.0). Among all ages combined, the 1-week prevalence of use of any cold and cough medication declined significantly throughout the course of the study, from a high of 12.3% in 1999–2000 to a low of 8.4% in 2005–2006. A systematic review of self-medication among adolescents in different countries revealed that the overall prevalence of self-medication ranged from 2 - 92%. A high prevalence was reported from Germany, the United States, India, Malta, Kuwait, United Arab Emirates, Sweden and Spain (Shehnaz, Agarwal, & Khan, 2014). Studies of self-medication among children under-five years of age in African countries including Ghana are limited.

2.4 Benefit and risks of self-medication

Ocan et al (2014) reports WHO's initiative to encourage community treatment of common diseases using self-medication to help reduce the burden on health care services with developing countries as the most to benefit from this practice since developing countries face limited healthcare infrastructure and human resource constraints as well as a regulatory and legal framework to ensure responsible self-medication. Regarding the benefits of responsible self-medication, Esparanza (2010) highlights "increased access to medication and relief for the patient, the active role of the patient in his or her own health care, better use of physicians and pharmacists skills and reduced (or at least optimized) burden of governments due to health expenditure linked to the treatment of minor health conditions".

Self-medication is beneficial to individuals and the society as a whole. For individuals, as pointed out by WHO (2000), self-medication is a rapid and easy way to treat self-limiting conditions at a reduced cost than prescribed medication and puts individuals in charge of managing their own health. For society, practicing self-medication reduces the health care costs, the use of self-medication is beneficial since it decreases health care costs for many countries. Employers even benefit from responsible self-medication practices as "it enables employees to continue their work instead of contacting health care services and taking sick leave" (WHO, 2000).

However, self-medication has inherent downside risks. For instance, failing to follow dosage instructions and wrong indication may pose drug reactions, make sickness more serious and even cause death (WHO, 2000; Reinstein, 2005). Esperanza (2010) highlights some potential risks of self-medication practices including "incorrect self-diagnosis, delays in seeking medical advice when needed, infrequent but severe adverse reactions, dangerous drug interactions, incorrect

manner of administration, incorrect dosage, incorrect choice of therapy, masking of a severe disease and risk of dependence and abuse".

2.5 Factors influencing with self-medication among children

Several factors could influence self-medication practices among children. These factors could range from individual and personal, health system to socio-economic and societal norms, belief systems and cultural.

2.5.1 Parental socioeconomic background

Background characteristics of parents have been associated with self-medication among children. Emerson et al (2006) indicates that the education, wealth and status of a parent significantly influences self-medication among children. Ecklund and Ross (2001) found out that psychosomatic symptoms, chronic illnesses, and/or poorer self-rated health were reported by their parent or themselves as compared to children with high parental socioeconomic background. In addition, Bauman, Silver and Stein (2006) and Larson et al (2008) also found out that the presence of multiple social risk factors such as poor education, poverty, family structure, and family conflict have a cumulative effect on children's poor health and that parental low socioeconomic background in childhood may also predict poor health in adulthood (Melchior et al., 2007). However, Currie et al (2007) posited that family income is not a major determinant of predicting child's health. Little empirical evidence exists that explores the relationship between parental socio-economic background and drug usage among children. On the other hand, Tobi et al (2003) and Ishida, Ohde and Takahashil (2012) show that high socioeconomic background of at least one parent is positively associated with OTC medicine use among children and adolescents. This suggests that parents or caregivers who have more education are well-informed and confident about drug usage to cure their children (Aoyama, Koyama and Hibino, 2012).

However, Holstein, Hansen and Due (2004) reports that "low social class of adolescents, according to parents' occupation, is associated with increased use of medicines for specific symptoms compared to adolescents from higher social class".

2.5.2 Individual and personal/ Household / Societal norms and Cultural factors influencing self-medication

At the level of the individual, several personal factors are identified to influence self-medication practices and these includes sex, income, self-care orientation, and medication knowledge (Sawalha, 2008). For instance, some individuals tend to undertake activities aimed at promoting their health without any assistance from professionals and are described as self-care-oriented people. Thus, self-care orientation coupled with medication knowledge are regarded as crucial factors that shape and determine attitudes of individuals toward self-medication (Sawalha, 2008).

Parental views, experiences, and attitudes toward medicines motivate self-medication among children (Kankkunen et al., 2008, and Jensen et al., 2010). For example, a positive-oriented parent can take initiative to curb pain of child than a parent with a negative attitude about medicines (Rony et al (2010). A parent's disposition towards medication becomes a predictor of self-medication and drug misuse (Shehnaz, Agarwal, & Khan, 2014).

In addition, there are existing practices within households in communities that tend to facilitate inappropriate use of drugs and promote self-medication. Studies have shown that in developing countries where there are deficiencies in healthcare delivery systems such as frequent drug stock outs, communities are influenced to store drugs in homes (Yousif, 2002), and the presence of medicines at home ensures easy access to drugs and sharing of drugs which promote self-medication and inappropriate drug use (Wasserfallen et al., 2003). Shehnaz, Agarwal and Khan (2014) also identified that household practices such as the use of old prescriptions, sharing of

medicines with friends/relatives, and use of leftover medicines from previous prescriptions/stocks at home are major drivers of self-medication among different communities globally (Shehnaz et al., 2014).

Furthermore, the societal norms, belief systems and culture of people play *"an important role in how different symptoms are detected and regarded as a medical problem"* (Lilja et al. 2008). For instance, parental perceptions about symptoms and cultural variations may influence self-medication among children. Jensen et al (2010) reports that over 90% of parents took their child to see physician if body temperature was high (39^{o}C). This behavior may be influenced by cost and access considerations. The reasons for this were that parents felt they should not make their own judgements, and also because the medical treatment of children is free of charge (Aoyama et al., 2012).

2.5.3 Provider factors

There are several factors influencing self-medication which emanate from the level of the existing health system of countries. According to Ocan et al., (2015), healthcare delivery systems with inadequacies have problems with self-medication. For instance, Pereira et al, (2007) found that self-medication in children includes several practices through which the individuals responsible for the healthcare needs of the child decide which drug they will use (and or in which way) for the symptomatic relief or "cure" of a condition. The problems of access, frequency of drug stock outs and lack of medical personnel are common in developing countries may influence communities to store drugs in homes and this has been found to be associated with sharing of drugs which further increase the risk of inappropriate drug and self-medication (Ocan et al., 2014). Self-medication can also be influenced by the high cost of health care and lack of enforcement of legislations regarding over-the-counter sale of medicines (Yousef et al., 2008)

while in a developing country self-medication could also be a consequence of the difficult access to health services and of the problem of lack control of pharmaceutical production and selling (Gualano et al., 2015). Pfaffenbach, Tourinho, and Bucaretchi, (2010) also indentified that healthcare systems in many countries fail to allow access to essential drugs and others have weak drug regulation systems which provide almost no barriers for purchasing medicines without a prescription and these greatly influence self-medication.

2.5.4 Mass media

The proliferation of various media channels in both print and electronic forms have led to easy access to information on medicines as different kinds of medicines are advertised to the general public on these media platforms. This influences individuals to resort to use of medicines without medical consultation. For instance, Gualano et al., (2015) observed in their study that promotional advertising of OTC drugs through mass media has contributed in changing people's attitude to use medications/ drugs and this potentially can lead to increase of drugs consumption as an easy way to take care of personal health problems without recourse to medical consultation.

2.6 Conclusion

The literature reviewed showed that several studies have examined self-medication in different settings among different groups across the globe. While some studies have focused on self-medication of specific medications such as malarial drugs and antibiotics, others have looked at self-medication among various age groups. Most of these studies are predominantly limited to examining practices of self-medication among adolescent and adult populations. Studies on self-medication among children especially factors of self-medication among children under five years with upper respiratory tract infections are limited in Ghana. Thus, the primary aim of this study

is to assess self-medication for URTI among children under five years with upper respiratory tract infection, a disease that is common among children.

CHAPTER THREE

METHODOLOGY

3.1 STUDY DESIGN

This study employed a descriptive cross-sectional design using quantitative method to assess self-medication among children with upper respiratory tract infections (URTIs) in the Tema East sub-metro of the Greater Accra Region.

3.2 STUDY AREA

The study was conducted at the Tema Metropolitan Assembly. Tema metropolis is one of the 16 districts in Greater Accra Region. The new Tema Metropolis is bounded in the North-East by Ashaiman Municipality, in the North-West by Adentan Municipality, on the West by Ledzokuku-Krowor Municipality, in the South by the Gulf of Guinea and in the East by the Kpone-Katamanso District. Generally, the metropolis stretches between latitude 5037'N in the southern coastline and latitude 5041'N at its northern most limits. The Tema Metropolis has a population of about 403,934 (Ghana Statistical Service, 2010), making it the second largest populated district in the Greater Accra Region.

The Tema East Sub-metro, where the study was conducted, is one of the sub-metros of the Tema Metropolitan Assembly. The Tema East Sub-metro is a fishing community with low income levels. It has one health centre and a private hospital to serve the healthcare needs of the people. There are also several pharmacy and chemical shops from which residents can easily obtain over-the-counter drugs. The study was conducted in Oninku Electoral area, which is one of the communities in the Tema East sub-metro. This community randomly selected using balloting.

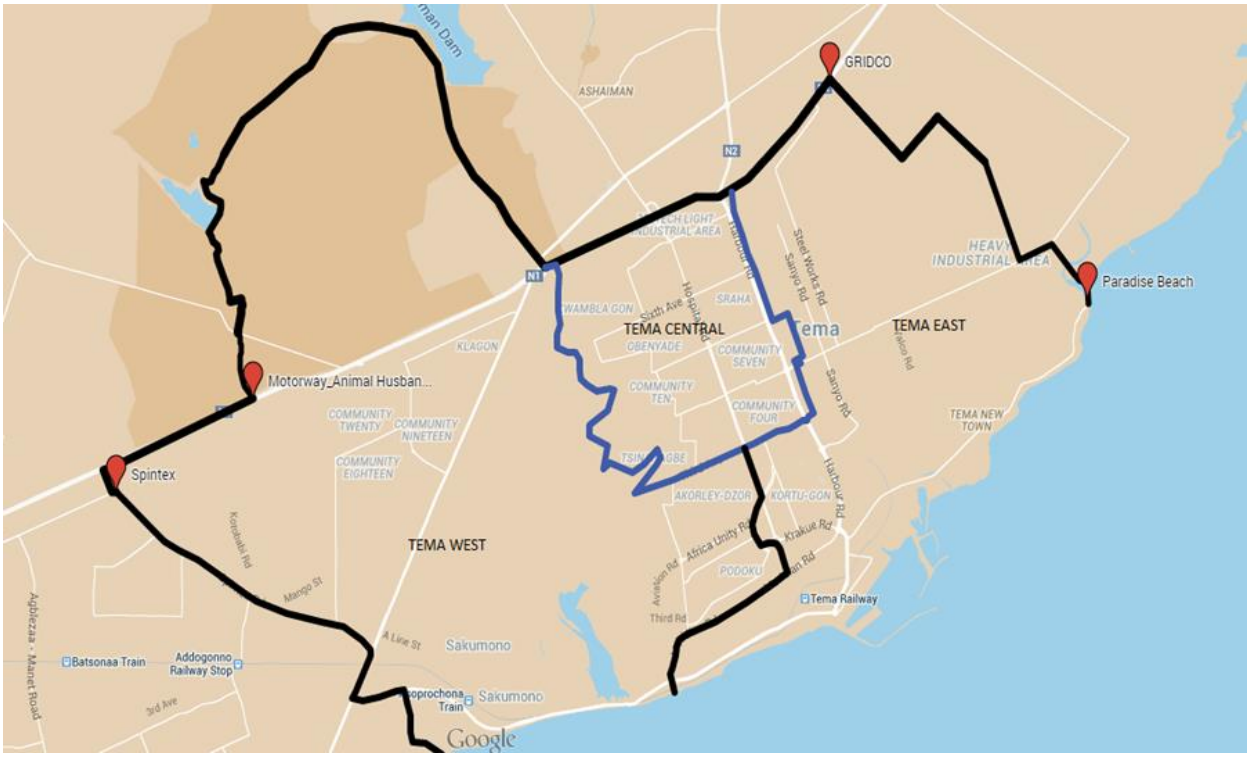


Figure: 3.1: Map of Tema Metropolitan Assembly (Source: Google Maps).

3.3 VARIABLES

3.3.1 Dependent variable

The dependent variable of the study was self-medication among parents/caregivers with children under five years with URTI within the past two weeks. Self-medication was further sub-divided into responsible self-medication and irresponsible self-medication.

3.3.1.1 Responsible Self-Medication

For the purposes of this study, responsible self-medication refers to using approved medication for URTI treatment as directed by parents/caregivers to treat children under five years suffering URTI within the past two weeks at the time of the study. Approved medication includes cough mixture, Procold, Amoxacilin and Paracetamol. Using approved drugs as directed ranges between three to seven days.

3.3.1.2 Irresponsible Self-Medication

For the purposes of this study, irresponsible self-medication refers to using either unapproved medication for URTI treatment or using approved medication not as directed by parents/caregivers to treat children under five years suffering URTI within the past two weeks at the time of the study. Approved medication includes cough mixture, Procold, Amoxacilin and Paracetamol. Irresponsible self-medication results when drugs are used less than three or five days.

3.3.1.3 Overall Self-Medication

For the purposes of this study, overall self-medication is a composite variable derived from combining the indices for responsible self-medication and irresponsible self-medication.

3.3.2 Independent Variables

The independent variables of the study include socio-demographic characteristics, individual/household/societal factors, mass media factors and provider factors.

3.3.2.1 Socio-demographic characteristics

Socio-demographic characteristics of parents/caregivers in this study include the age, sex, number of children under five years, education level, marital status, occupation and income as well as spouse's educational level and occupation.

3.3.2.2 Individual/Household/Societal factors

Individual / household / societal factors include self-care orientation and attitude towards medicine, storage and use of left-over medicine at home, provision of medicine by family/friends, social norms, beliefs and habits of self-medicine.

3.3.2.3 Mass Media Factors

Mass media factors include advertisement and ownership of phone/radio/TV.

3.3.2.4 Provider Factors

Provider factors include availability of OTCs in locality and cost of URTI treatment.

3.4 STUDY POPULATION

The study population included parents/caregivers with children under five years suffering Upper Tract Respiratory Infections (URTIs) during the past two weeks at the time of data collection in the Tema East Metropolis.

3.4.1 Inclusion criteria

Parents/caregivers with children under five years who experience Upper Tract Respiratory Infections (URTIs) in the past two weeks prior to the study were included in the study. URTI was described and identified by its disease symptoms such as cough, cold, running nose, pneumonia, etc. To recruit a parent/caregiver for the study, the researcher and her assistants toured and visited households in the community and after disclosing purpose of study, verbally asked parents/caregivers whether they had children under five years old. Where parents/caregivers had children under five years, the research team enquired whether within the past two weeks, any of their children under five years had suffered any of the disease symptoms of Upper Respiratory Tract Infections (URTIs) such as cough, cold, running nose, pneumonia and bronchitis. If their children suffered any of these symptoms of URTIs or had been diagnosed by a medical practitioner within the past two weeks, voluntary consent was sought from the parent/caregiver to participate in the study.

3.4.2 Exclusion criteria

Parents/caregivers with children under five years with URTIs who refuse to give consent were excluded from the study. Parents/caregivers with children who are seriously sick with URTIs were also excluded from the study.

3.5 SAMPLING

3.5.1 Sample size determination

A sample size of 151 was derived using Cochran's sample size formula shown below (Cochran, 1972)

$n = Z^2P\ (1\text{-}P)/\ (d)^2$

Where,

n = sample size required.

Z = confidence level (95% level of confidence - 1.96).

P = Least prevalence of outcome variable (self-medication among children) = 10% obtained from literature (Vernacchio, Kelly, Kaufman, & Mitchell, 2008).

d = Margin of error (5% =0.05).

Substituting,

$n = (1.96)^2\ (0.1)\ x\ (1\text{-}\ 0.1)/\ (0.05)^2 = 138.$

Adding 10% to make up for non-response and wrongly filled questionnaire will give a total sample size of 151.

3.5.2 Sampling Method

A non-probability sampling technique, however similar in practice with systematic random sampling procedure, was used. A key landmark in the area was identified and together with the two research assistants the study team moved in one direction either left or right. Every second house in the direction taken by each of the study team members was sampled for the study. If a selected household did not have any child under five years who had a recent episode of URTI, it was replaced by the next nearest household. With selected households that had more than one child under five years with URTI, data was collected for only one randomly selected child.

3.6 DATA COLLECTION METHODS AND TOOLS

3.6.1 Data collection

A structured questionnaire was developed and administered to study respondents to collect data on self-medication. Items on the questionnaire were read and explained to individual respondents to choose the options as they deemed fit. At times, some of the questionnaires were left to the respondents to be completed through self-administration. This was appropriate and convenient where the respondent was willing to participate in the study but could complete the questionnaire at his or her convenience. The questionnaire for the study collected data on socio-demographic characteristics of participants, provider factors; mass media factors individual/household/societal norms and cultural factors influencing self-medication.

3.6.2 Data processing and analysis

Microsoft Excel was used to create a data file which contained the raw scores of the survey data collected. This was further cleaned and exported to STATA 15 for coding and statistical data analyses. Descriptive statistics were computed to thoroughly describe the respondents and

logistic regression analysis, an inferential statistics procedure was used to assess the extent to which the predictors influenced the dependent variables.

3.7 Background characteristics of parents/caregivers and children

Descriptive analysis was used to describe the background characteristics of parents/caregivers and the children. The results were presented in tables with frequencies and percentages.

3.8 Determination of prevalence of self-medication

3.8.1 Determination of responsible self-medication

The prevalence of responsible self-medication was determined by quantifying the number of participants who practiced responsible self-medication and the number divided by the total number of children who have received treatment expressed as a percentage. This was expressed as;

$$\boldsymbol{Prevalence\ of\ responsible\ self\ medication} = \frac{\boldsymbol{Number\ of\ respondents\ who\ practice\ responsible\ self\ medication}}{\boldsymbol{Total\ number\ of\ children\ who\ received\ treatment}} \times \mathbf{100}$$

3.8.2 Determination of irresponsible self-medication

Irresponsible self-medication was determined by quantifying the number of respondents practicing irresponsible self-medication and the number divided by the total number children who have received treatment expressed as a percentage. This would be expressed as:

$$\boldsymbol{Prevalence\ of\ irresponsible\ self\ medication} = \frac{\mathbf{Number\ of\ respondents\ who\ practice\ irresponsible\ self\ medication}}{\mathbf{Total\ number\ of\ children\ who\ received\ treatment}} \times \mathbf{100}$$

3.8.3 Determination of overall prevalence of self-medication

The overall prevalence of self-medication was then determined by summing up the indices for the prevalence of responsible self-medication and irresponsible self-medication.

$$= (\boldsymbol{Responsible\ Self\ Medication\ Index + Irresponsible\ Self\ Medication\ Index})$$

3.9 Determination of factors influencing self-medication

Chi-square statistical analysis was also used to test for significant associations between socio-demographic characteristics of participants and the outcome measure (self-medication). Each of the factors was individually regressed with the main outcome measure (self-medication) in bivariate analysis to determine crude estimates. Factors with a level of significance of 0.05 in the bivariate analysis were then selected and included in a multivariate regression analysis to determine predictors of self-medication. These tests were performed at 95% confidence interval and results were presented in tables, graphs and charts using a logistic regression model.

3.10 Quality control

The following measures were taken to ensure quality of data for the study:

3.10.1 Training of research assistance

Prior to the start of field work, a day training session for the two research assistants was organized by the researcher with the prime aim of equipping them with the required skills needed to assist in the study. The training helped to clearly spell out their tasks, including a discussion of the purpose of the study, ethical issues and administration of questionnaires.3.10.2 Pre-test/ Pilot study

A pilot study was conducted to pretest the research instrument, in this case a questionnaire, in the Tema West sub-metro. This was necessary to ensure the validity and reliability of the

questionnaire which was meant to be used to collect primary data from the parents/caregivers of children under 5 years.

3.10.3 Supervision and checking

The two research assistants were supervised during data collection. A concerted effort was made to ensure that data collected was accurate and complete, especially free from response sets. In addition, the contact details of the respondents were obtained so that clarification of answers on the questionnaire could be easily obtained from the respondents.

3.11 Ethical clearance

Ethical clearance was sought from Ghana Health Service Ethics Review Committee, Research and Development Division, Accra. Informed consent of respondent was also sought before they participated in the study.

3.11.1 Community entry

The District Health Directorate as well as the District Assembly and the leadership of the community was contacted and notified of the intention to conduct the study. Subsequently, an introductory letter was obtained from the Head of Department, Health Policy, Planning and management, School of Public Health, College of Health Sciences, University of Ghana and sent to them. A copy of the ethical clearance letter from the Ghana Health Service Ethics Review Committee was also sent to the authorities.

3.11.2 Privacy, confidentiality and anonymity

To ensure the anonymity of the participants of the study, the questionnaires did not require the names of the participants. Though the contact details were obtained, it was meant to clarify responses when the need be during data processing and analysis. The interview was conducted in private with individual respondents so as to guarantee their privacy.

3.11.3 Compensation

There was no compensation for participating in the study and there was no cost associated with participating in the study. All participants were duly informed about this before they chose to take part in the study or not.

3.11.4 Risk and Benefits

This study posed minimal risk to participants since this is a non-invasive study. Study respondents used a minimum of 30 minutes of their time in answering the questionnaires. There were no direct benefits associated with taking part in the study. However, it is expected that the results of the study would contribute towards policy decisions making on self-medication in order to improve upon health services delivery.

3.11.5 Voluntary withdrawal

Participants were informed that participation in the study was voluntary and that they could communicate their intention to withdraw from the study at any point in time. Where a participant withdrew from the study, data obtained on that participant was deleted. Also, participants were made to believe that they could choose to answer questions. Despite the risk of high non-response rate, participants were informed that they could make a decision to answer a question or not. However, participants were encouraged to provided adequate, accurate and complete information to make the findings of the study more meaningful.

3.11.6 Consenting process

The purpose of the study was explained to each participant and consent to participate was sought verbally and in writing using a written consent form which could be signed by each participant.

3.11.7 Data storage and usage

Questionnaires used for collecting the data were stored in a large paper envelope and stored in a safe free from risk of fire and damage. Also, the data files created during the data collection and processing phase of the study was stored on external drive for safe keeping.

3.11.8 Declaration of conflict of interest

The researcher as the Principal Investigator declared no conflict of interest in this study.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter presents the findings of the current study on the assessment of the type of self-medication and the factors influencing URTIs among children under 5 years in the Tema East Sub-Metro in the Tema Metropolitan Assembly.

4.1 Background characteristics of parent/caregivers and children

The response rate of the study was 126 (83.4%). Majority of the parents/caregivers were female 88 (69.8%)). Most of them were aged between 20 – 29 years 48 (38.1%)), of which 18 (14.3%) were male parents/caregivers and 30 (23.8%) were female parents/caregivers. Most of the parent/caregivers had had Middle/JSS education (51 (39.8%)). Furthermore, majority of the parents/caregivers were privately employed, with 68 (54%) of them married. Most of the parents/caregivers were low income earners 76 (60.5%). Moreover, the spouses of these parents/caregivers were SHS/Vocational level graduates 54 (42.9%) and most were also private employees 104 (82.5%)). Majority of the parents/caregivers had one child under 5 years 66 (52.3%) of which 70 (55.6%) were males and 56 (44.4%) were females and most of them aged one year 53 (42%). Only 50 (39.7%) of these children were insured.

Table 4.1: Background characteristics of parent/caregivers and children

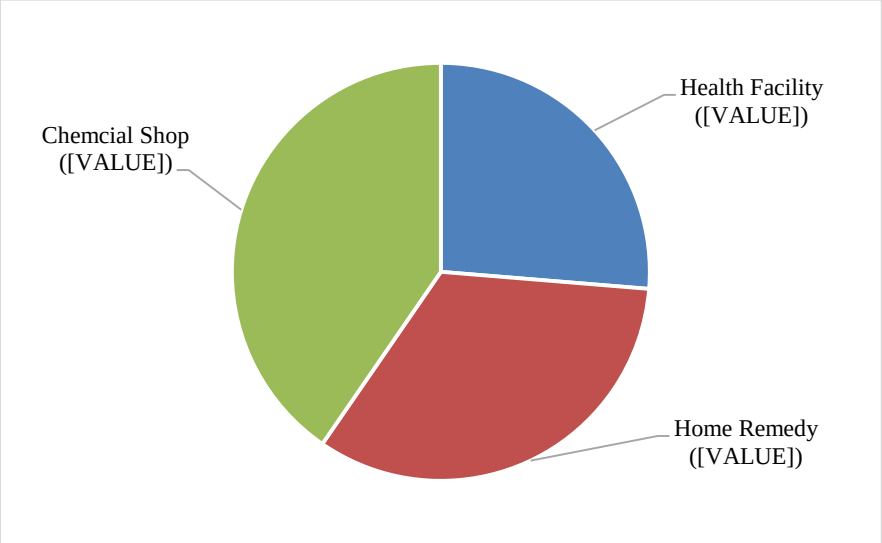
Items	Distribution of Parent/ Caregivers		
	Number (%)		
	Male (%)	Female (%)	Total (%)
Sex	38 (30.2)	88 (69.8)	126 (100)
Age			
< 19	9 (7.1)	35 (27.8)	44 (34.9)
20-29	18 (14.3)	30 (23.8)	48 (38.1)
30-39	9 (7.1)	18 (14.3)	27 (21,4)
40+	1 (0.8)	5 (4.0)	7 (4,8)
Non-Response	1(0.8)	0 (0.0)	1 (0.8)
Educational Level			
No Education	4 (3.2)	4 (3.2)	8 (6.4)
Primary	9 (7.1)	24 (19.1)	33 (26.2)
Middle/JHS	16 (12.7)	35 (27.8)	51 (39.8)
SHS/Vocational	9 (7.1)	21 (16.7)	30 (23.8)
Tertiary	0 (0.0)	3 (2.4)	3 (2.4)
Occupation			
Government Employee	2 (1.6)	8 (6.4)	10 (8.0)
Private Employee	34 (27.0)	68 (54.0)	102 (81.0)
Unemployed	2 (1.6)	12 (9.5)	14 (11.1)
Marital Status			
Not Married	18 (14.3)	40 (31.8)	58 (46.1)
Married	20 (15.9)	48 (38.1)	68 (54.0)
Income (GHS)			
Low (< GHC 399)	25 (20.0)	51 (40.5)	76 (60.5)
Middle (GHC 400 – 799)	5 (4.0)	15 (12.0)	20 (16.0)
High (GHC 800 +)	1 (0.8)	2 (0.8)	3 (1.6)
Non-Response	7 (5.6)	20 (15.7)	27(21.3)

Educational Level (Spouse)			
No Education	4 (3.2)	5 (4.0)	9 (7.2)
Primary	3 (2.4)	2 (1.6)	5 (4.0)
Middle/JHS	9 (7.1)	30 (23.8)	39 (30.9)
SHS/Vocational	18 (14.3)	36 (28.6)	54 (42.9)
Tertiary	4 (3.2)	15 (11.9)	19 (15.1)
Occupation (Spouse)			
Government Employee	8 (6.4)	11 (8.7)	19 (15.1)
Private Employee	29 (23.0)	75 (59.5)	104 (82.5)
Unemployed	1 (0.8)	2 (1.6)	3 (2.4)
No. of children < 5 years			
1	22 (17.4)	44 (34.9)	66 (52.3)
2	16 (12.7)	23 (18.3)	39 (31.0)
3	3 (2.4)	12 (9.5)	15 (11.9)
4	1 (0.8)	5 (4.0)	6 (4.8)
Sex of children < 5 years with URTI	70 (55.6)	56 (44.4)	126 (100)
Age (Years) < 5 years			
1	29 (23.0)	24 (19.0)	53 (42.0)
2	14 (11.1)	22 (17.4%)	36 (28.5)
3	17 (13.5)	7 (5.6)	24 (19.1)
4	7 (5.6)	2 (1.6)	9 (7.2)
Non-Response	3 (2.4)	1 (0.8)	4 (3.2)
NHIS for < 5 years with URTI			
Insured	30 (23.8)	20 (15.9)	50 (39.7)
Uninsured	40 (31.7)	36 (28.6)	76 (60.3)
Total	70 (55.6)	56 (44.4)	12600)

4.2 URTIs status of children under 5 years

About 41 (32.5%) of children under 5 years were still suffering from URTIs at the time of the study. On average, male children and female children had suffered URTIs for 6 days and 5 days respectively. About 99 (78.6%) of children suffering URTI had received treatment and 27 (21.4%) had not received treatment. Of those who had not received some treatment, 7 (25.9%) of parents/caregivers attributed that to child not being registered on NHIS, 8 (29.6%) to cultural and social norms; 5 (18.5%) to inadequate income; 5 (18.5%) to religious beliefs and self-care orientation 1 (3.7%). For those who had received treatment, 26 (26.3%) of parents/caregivers sought treatment from a health facility, 33 (33.3%) from home remedy and 40 (40.4%) from chemical shop a shown in figure 4.1. The general symptoms observed by parents/caregivers, where cough and running nose was 107 (84.9%)).

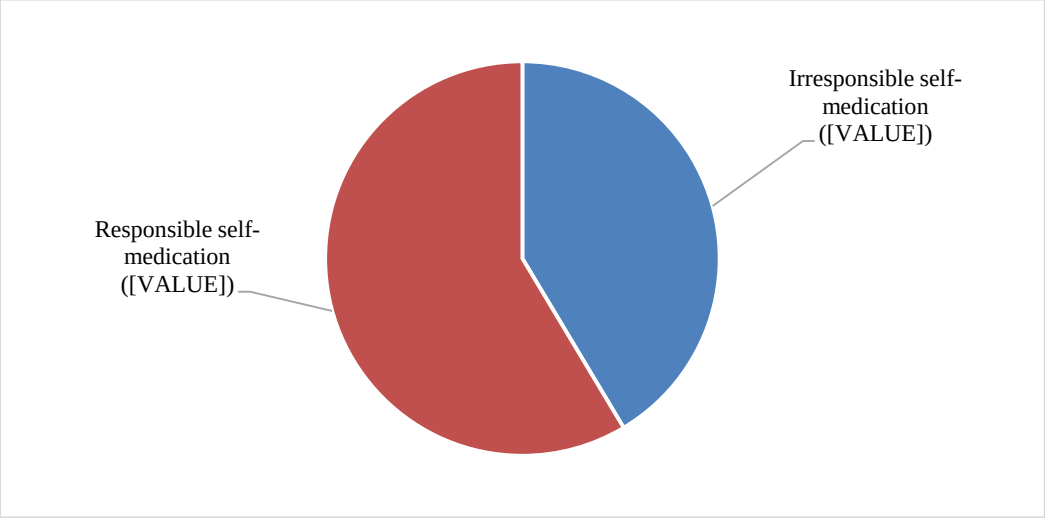
Figure 4.3: Place of URTI Treatment



4.3 Prevalence of self-medication

The prevalence of responsible self-medication was 41 (41.4%) and that of irresponsible self-medication was 58 (58.6%) as shown in figure 4.2. The overall prevalence of self-medication was 99 (78.6%).

Figure 4.4: Prevalence of responsible and irresponsible self-medication



4.4 Factors influencing self-medication

This section describes the factors that influence self-medication among children under 5 years suffering URTIs. Factors include parental socio-demographic, personal/household/social, providers and media factors.

4.4.1 Socio-demographic factors

Table 4.2 shows that none of the socioeconomic factors had significant associations with self-medication ($p>0.05$).

Table 4.2: Socio-demographic factors influencing self-medication

Background Characteristics of Parents/Caregivers	n (%)	OR	95% CI	p-value
Sex				
Male (Ref)	32 (32.3)	1		
Female	67 (67.7)	0.87	(0.37, 2.03)	0.744
Age				
< 19 (Ref)	37 (37.4)	1		
20-29	40 (40.4)	1.20	(0.49, 2.97)	0.693
30-39	16 (16.2)	0.88	(0.26, 2.94)	0.835
40+	6 (4.0)	1.47	(0.19, 11.59)	0.716
Educational Level				
No Education (Ref)	0 (0.0)	1		
Primary	0 (0.0)	2.47	(0.23, 26.46)	0.455
Middle/JHS	41 (41.8)	1.39	(0.13, 14.70)	0.783
SHS/Vocational	21 (21.4)	4.00	(0.35, 45.10)	0.262
Tertiary	1 (1.0)	1		
Occupation				
Government Employee	6 (6.1)	1		
(Ref)	81 (82.7)	0.69	(0.13, 3.62)	0.658
Private Employee	11 (11.2)	0.57	(0.75, 4.30)	0.587
Unemployed				
Marital Status				
Not Married (Ref)	49 (49.5)	1		
Married	20 (50.5)	1.24	(0.56, 2.76)	0.598
Income (GHS)				
Low (< GHC 399) [Ref]	66 (75.0)	1		
Middle (GHC 400 – 799)	19 (21.6)	1.60	(0.58, 4.48)	0.366
High (GHC 800 +)	3 (3.4)	0.72	(0.06, 8.37)	0.795
Educational Level				

(Spouse)	4 (4.2)	1		
No Education (Ref)	2 (2.1)	0.86	(0.04, 16.85)	0.919
Primary	34 (35.4)	0.53	(0.15, 1.93)	0.336
Middle/JHS	43 (44.8)	0.68	(0.20, 2.36)	0.542
SHS/Vocational	13 (13.5)	1		
Tertiary				
Occupation (Spouse)				
Government Employee	17 (17.4)	1		
(Ref)	81 (82.7)	1.39	(0.47, 4.14)	0.549
Private Employee		1		
Unemployed				
No. of children < 5 years				
1 (Ref)	50 (52.6)	1		
2	31 (32.6)	0.80	(0.32, 2.00)	0.639
3	12 (12.6)	1.27	(0.36, 4.50)	0.708
4	2 (2.1)	1.27	(0.08, 21.51)	0.867
Sex of children < 5 years with URTI				
Male (Ref)	56 (56.6)	1		
Female	43 (43.4)	10.3	(0.46, 2.31)	0.937
Age (Years) < 5 years				
1 (Ref)	46 (47.4)	1		
2	27 (27.8)	1.74	(0.66, 1.59)	0.262
3	17 (17.5)	1.67	(054, 5.16)	0.375
4	7 (7.2)	1.41	(0.28, 7.07)	0.679
NHIS for < 5 years with URTI				
Uninsured (Ref)	61 (61.6)	1		
Insured	38 (34.4)	1.77	(0.78, 4.04)	0.173

4.4.2 Provider factors, personal/household/social and media factors

Table 4.3 provides results from logistic regression analysis. It shows the extent to which provider factors, personal/household/social factors influence self-medication by reporting adjusted odd ratios (AOR), 95% confidence intervals and p-values. The most important insight from the logistic regression procedure as shown in table 4.3 relates to the extent to which provider factors influence self-medication. Parents/caregivers with children under five years who practiced self-medication were 0.01 times at with availability of OTCs in locality (0.1 (CI [0.00,0.04]; $p<0.05$). While all other factors lacked statistical significance, the availability of OTCs in the locality significantly predicted self-medication among parents/caregivers of children under five years suffering URTI. On the other hand, personal, social and media factors were insignificantly related to self-medication.

Table 4. 3 - Predictors of self-medication

Factor	Factors influencing self-medication	n (%)	AOR	95% CI	p-value
Provider	Availability of OTCs in my locality	99 (100%)	0.01	(0.00, 0.04)	0.000
	Cost of URTI Treatment	99 (100%)	0.46	(0.08, 2.77)	0.397
Personal/Household/Social	Self-care Orientation and attitude towards medicine	99 (100%)	0.16	(0.02, 1.19)	0.074
	Storage and use of left-over medicine at home	99 (100%)	0.71	(0.12, 4.27)	0.704
	Provision of medicine by family and friendships	99 (100%)	1.88	(0.27, 13.14)	0.523
	Social norms	99 (100%)	1.27	(0.21, 7.80)	0.794

	Belief and habits of self-medicine	99 (100%)	1.04	(0.13, 8.00)	0.971
Media	Advertisement	99 (100%)	0.25	(0.04, 1.75)	0.163
	Ownership of Phone/Radio/TV	99 (100%)	0.45	(0.07, 2.88)	0.399

CHAPTER FIVE

DISCUSSIONS

5.0 Introduction

This chapter discusses the findings of the study in the context of empirical findings in the literature.

5. 1 The prevalence of self-medication for URTI among children below 5 years

The study found out that the overall prevalence of self-medication for treating URTIs among children under 5 years in the Tema East Sub-metro in the Tema Metropolitan Assembly was high. This high prevalence of self-medication can be explained by the fact that Tema is a fishing community with low income and educational levels among parents/caregivers coupled with lack of health facilities but a proliferation of pharmacy and chemical shops. The study revealed that about 76 (60.5%) of parents/caregivers earned below four hundred Ghana cedis (GHC 400), only about 3 (2.4%) had tertiary education and 76 (60.3%) of children under 5 years were uninsured on the National Health Insurance Scheme (NHIS).

From the above findings, a prevalence of self-medication of 99 (78.6%) generally confirms the assertions of Shehnaz, Agarwal and Khan (2014) that the overall prevalence of self-medication in different countries range between 2% – 92%. Also, the prevalence of self-medication as revealed in this study is generally higher than prevalence scores obtained by Pfaffenbach et al. (2010) and Vernacchio et al (2008) who obtained prevalence scores of about 67% and 10.1% respectively.

With the overall prevalence of self-medication of 99 (78.6%), the study found out a prevalence of responsible self-medication of about 41 (41.4%) as compared to a 58 (58.6%) for irresponsible

self-medication. This finding indicates that irresponsible self-medication is more prevalent than responsible self-medication. Yet this finding is not surprising given the socio-economic and cultural makeup of the Tema community as indicated earlier. The researcher also observes that the Tema community has one health center and a private hospital and this further explains why only 26 (26.3%) of parents/caregivers may have visited a health facility for URTI treatment for their children under 5 years as revealed in the study. Moreover, it is noteworthy that about 73 (73.7%) of parents/caregivers claimed that their children had received URTI treatment from chemical shops and home remedies instead of from health facilities. These practices seem to explain the high irresponsible self-medication in the Tema East Sub-metro community.

This study confirms the observations of Skliros et al. (2010) and Gualano et al. (2015) on irresponsible self-medication. This phenomenon is however alarming in view of the risks and dangers inherent in irresponsible self-medication. For instance, Mehta et al (2007) and Okeke, Klugman and Bhutta (2005) have opined that irresponsible self-medication predisposes patients to drug interactions, masking symptoms of underlying disease and development of resistance especially with the antimicrobial drugs.

5.2 The factors influencing self-medication

5.2.1 Socio-demographic factors

The study sought to find out whether socio-economic factors influenced self-medication among children under 5 years for URTI treatment. However, the adjusted odd ratios obtained for the following socio-economic factors such as sex, age, educational level, occupation, marital status and income of parents/caregivers as well as the sex and age of child under 5 years and whether or not a child was insured under NHIS, found no statistically significant associations with self-medication.

Though Ecklund and Ross (2001), Tobi et al (2003) and Ishida et al (2012) explored the association between parental socioeconomic background and children's use of OTC medicines and found out that high socioeconomic background of at least one parent was positively associated with OTC medicine use among children and adolescents. However, this study failed to confirm these empirical findings and the issue of whether or not socio-economic factors significantly influence self-medication among children remains unresolved.

5.5.2 Provider factors, personal/household/social and media factors

The study sought to find out the extent to which provider factors, personal/household/social and media factors influence the prevalence of self-medication for treating URTIs among children below 5 years. Of the three main factors, only provider factors had a significant association with self-medication. It appears that parents/caregivers typically perceive provider factors such as the availability of Over-The-Counter (OTC) drugs as the predominant factor in influencing self-medication. The study indicates that parents/caregivers were about 0.01 times more at odds to be influenced by provider factors than personal/household/social and media factors. Therefore, provider factors such as availability of OTCs are highly related with practice of self-medication among parents/caregivers.

This finding confirms the assertion that the prevalence of OTC drugs influences self-medication. Dabney (2001) found out that 60% of self-treatment of ailments without professional help involved OTC drugs and this phenomenon as observed by Nichol, D'Heilly and Ehlinger (2006) occurs mostly in developing countries such as Ghana. Moreover, Yousef et al (2008) argued that self-medication can also be influenced by the high cost of health care and lack of enforcement of legislations regarding over-the-counter sale of medicines. Whilst Gualano et al (2015) also posited that self-medication could be attributable to difficulty in getting access to health services

and control lapses in pharmaceutical production and marketing in a developing country like Ghana.

This study is very insightful in the context of empirical findings that pinpoint provider factors as the predominant factor in self-medication.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study concludes self-medication was high in the Tema East Sub-Metro especially irresponsible self-medication. This was mainly influenced by provider factor and not socio-economic factors.

6.2 Recommendations

The following recommendations are made to control the prevalence of self-medication for URTIs among children:

1. In view of the high prevalence of irresponsible self-medication, the Tema East Sub-Metro Health Administration should organize health talks in media and at OPDs to educate the general public on risks and costs of self-medication.
2. The Tema East Sub-Metro Health Administration should draw up annual education/training programmes on self-medication and dispensing/prescribing practices for OTCs in the sub-metro.

REFERENCES

Abdel-Salam, D., & Abdel-Khalek, E. (2016). Pattern and barriers of physical activity among medical students of Al-Jouf University, Saudi Arabia. Journal of High Institute of Public Health, 46 (2), 41-48. Retrieved from https://jhiphalexu.journals.ekb.eg/article_20080.

Ahonen, R. (2008). Self-care medicines – savings for health care. *Medicines and Health, pp. 141−145*.

Ameko, E., Achio, S., & Alhassan, S. (2012). Effects of antibiotic self-medication on the efficacy of four antibiotic commonly used in Ghana on clinically isolated micro-organisms. *International Journal of Pure and Applied Sciences and Technology, 10(2), 62-70.* Retrieved from http://www.ijopaasat.in.

Aoyama, I., Koyama, S., & Hibino, H. (2012). Self-medication behaviors among Japanese consumers: sex, age, and SES differences and caregivers' attitudes toward their children's health management. *Asia Pacific Family Medicine, 11(1), 7*. DOI: 10.1186/1447-056X-11-7.

Bauman, L.J., Silver, E.J., & Stein, R.E. (2006). Cumulative social disadvantage and child health. *Pediatrics 117(4), 1321−1328*.

Bham, S.Q., Saeed, F., & Shah, M. A. (2016). Knowledge, attitude and practice of mothers on acute respiratory infection in children under five years. *Pakistan Journal of Medical Sciences, 32(6), 1557–1561*. Retrieved from https://doi.org/10.12669/pjms.326.10788.

Cars, O., & Nordberg, P. (2005). Antibiotic resistance – the faceless threat. *International Journal of Risk and Safety in Medicine, 17, 103 – 10.*

Chen, Y., & Kirk, M.D. (2014). Incidence of acute respiratory infections in Australia. *Epidemiology and Infection,42, 1355–61*.

Cruz, M. J. B., Dourado, L. F. N., Bodevan, E. C., Andrade, R. A., & Santos, D. F. (2014). Medication use among children 0-14 years old: population baseline study. *Jornal de Pediatria, 90(6), 608–615.* Retrieved from https://doi.org/10.1016/j.jped.2014.03.004.

Currie, J., & Lin, W. (2007). Chipping away at health: more on the relationship between income and child health. *Health Affairs, 26(2), 331−344*.

Dabney, D.A. (2001). Onset of illegal use of mind-altering or potentially addictive prescription drugs among pharmacist. Journal of American Pharmacists Association, 4, (392-400).

Du, Y., & Knopf, H. (2009). Self-medication among children and adolescents in Germany: results of the national health survey for children and adolescents (KiGGS). *British Journal of Clinical Pharmacology, 68(4), 599–608.* Retrieved from https://doi.org/10.1111/j.1365-2125.2009.03477.x

Ecklund, C.R., Ross, M.C. (2001). Over-the-counter medication use in preschool children. *Journal of Pediatric Health Care, 15(4), 168−172.*

Emerson, E., Hatton, C., Llewellyn G, Blacker, J., & Graham, H. (2006). Socio-economic position, household composition, health status and indicators of the wellbeing of mothers of children with and without intellectual disabilities. *Journal of Intellectual Disability Research 50(12), 862–873*.

Esperanza, M. R. (2010). Risks of self-Medication practices. *Current Drug Safety, 5(4)*. DOI: 10.2174/157488610792245966.

Fendrick, A.M., Monto, A.S., Nightengale, B., & Sarnes, M. (2003). The economic burden of non-influenza-related viral respiratory tract infection in the United States. *Archives of Internal Medicine, 163, 487–94.*

Ghana Statistical Service. (2010). 2010 Population and housing census - final results. Retrieved from http://www.statsghana.gov.gh.

Grigoryan, L., Burgerhof, J.GM., Degener, J.E., Deschepper, R., Lundborg, S.L., Monnet, D.L., Scicluna, E.A., Birkin, J., & Haaijer-Ruskamp, F.M. (2008). Determinants of self-medication with antibiotics in Europe: the impact of beliefs, country wealth and the healthcare system. *Journal of Antimicrobial Chemotherapy, 61, 1172 – 1179.* DOI: 10.1093/jac/dkn054.

Gualano, M. R., Bert, F., Passi, S., Stillo, M., Galis, V., Manzoli, L., & Siliquini, R. (2015). Use of self-medication among adolescents: A systematic review and meta-analysis. *European Journal of Public Health, 25(3), 444–450.* Retrieved from https://doi.org/10.1093/eurpub/cku207.

Holstein, B.E., Hansen, E.H., & Due, P. (2004). Social class variation in medicine use among adolescents. *European Journal of Public Health, 14(1), 49−52.*

Hughes, C.M., McElnay, J.C., & Fleming, G.F (2001). Benefits and risks of self-medication. *Drug Safety, 24, 1027-37.*

Ishida, Y., Ohde, S., &Takahashi, O. (2012). Factors affecting health care utilization for children in Japan. Pediatrics 129(1), 113−119.

Jensen, J.F., Tønnesen, L.L., Söderström, M., Thorsen, H., & Siersma, V. (2010). Paracetamol for feverish children: parental motives and experiences. *Scandinavia Journal of Primary Health Care, 28(2), 115−120.*

Kankkunen, P.M., Vehviläinen-Julkunen, K.M., & Pietilä, A.M. (2008). A tale of two countries: comparison of the perceptions of analgesics among Finnish and American parents. *Pain Management Nursing, 9(3), 113−119.*

Khan. R.A. (2011). Self-medication with antibiotics, practices among Pakistani students in Sweden and Finland. (Masters' thesis).

Klemenc-Ketis, Z., Hladnik, Z., & Kersnik, J. (2010). Self-medication among healthcare and non-healthcare students at Univeristy of Ljubljana, Slovenia. *Medical Principles and Practices, 19(5), 395-401.* DOI: 10.1159/000316380.

Kloosterboer, S. M., McGuire, T., Deckx, L., Moses, G., Verheij, T., & Van-Driel, M. (2015). Self-medication for cough and the common cold: Information needs of consumers. *Australian Family Physician, 44(7), 497–501.*

Larson, K., Russ, S.A., Crall, J.J., & Halfon, N. (2008). Influence of multiple social risks on children's health. *Pediatrics 121(2), 337−344.*

Lewinski, D., Wind, S., Belgardt, C., Plate, V., Behles, C., & Schweim, H.G. (2010). Prevalence and safety-relevance of drug-related problems in German community pharmacies. *Pharmacoepidemiology and Drug Safety, 19(2), 141–149.*

Lilja, J., Salek, S., Alvarez, A., Hamilton, D. (2008). Patient's attitudes and behavior. Pharmaceutical systems. *Global perspectives. pp. 277−299.*

Lukovic, J.A., Miletic, V., Pekmezovic, T., Trajkovic, G., RAtkovic, N., & Aleksic, D. (2014). Self-medication practices and risk factors for self-medication among medical students in Belgrade, Serbia. Retrieved from https://doi.org/10.1371/journal.pone.0114644.

Mehta, U., Durrheim, D.N., Blumberg, L., Donohue, S., Hansford, F., & Mabuza, A. (2007). Malaria deaths as sentinel events to monitor healthcare delivery and antimalarial drug safety. *Tropical Medicine and International Health, 12(5), 617–28.*

Melchior, M., Moffitt, T.E., Milne, B.J., Poulton, R., & Caspi, A. (2007). Why do children from socioeconomically disadvantaged families suffer from poor health when they reach adulthood? A life-course study. *American Journal of Epidemiology, 166(8), 966−974.*

Montasser, N., Helal, R., & Rezq, R. (2012). Assessment and classification of acute respiratory tract infections among Egyptian rural children. *British Journal of Medicine and Medical Research, 2(2), 216-227.*

Murray, M.D., & Callahan, C.M. (2003). Improving medication use for older adults: an integrated research agenda. *Annals of Internal Medicine, 139(5/2), 425-429.*

Nichol, K.L., D'Heilly, S., & Ehlinger, E.P. (2008). *Archives of Pediatrics and Adolescent Medicine, 162(12), 1113-1118.* DOI: 10.1001/archpedi.162.12.1113.

Ocan, M., Bwanga, F., Bbosa, G.S., Bagenda, D., Waako, P., Ogwal-Okeng, J., & Obua, C. (2014). Patterns and predictors of self-medication in Northern Uganda. *Public Library of Science, 9(3), 1–7.* Retrieved from https://doi.org/10.1371/journal.pone.0092323.

Ocan, M., Obuku, E. A., Bwanga, F., Akena, D., Richard, S., Ogwal-Okeng, J., & Obua, C. (2015). Household antimicrobial self-medication: a systematic review and meta-analysis of the burden, risk factors and outcomes in developing countries. *BMC Public Health, 15(1), 742.* Retrieved from https://doi.org/10.1186/s12889-015-2109-3.

Okeke, I.N., Klugman, K.P., & Bhutta, Z.A. (2005). Antimicrobial resistance in developing countries, part II: strategies for containment. *Lancet Infectious Diseases, 5, 568–80.*

Olivier, L. P., Bertrand, P, Tubery, M., Lauque, D., Montastruc, J.L., & Lapeyre-Mestre, M. (2009). Hospitalizations because of adverse drug reactions in elderly patients admitted through the emergency department: a prospective survey. *Drugs & Aging, 26(6), 475–482.*

Osemene, K. P., & Lamikanra, A. (2012). A study of the prevalence of self-medication practice among university students in southwestern Nigeria. *Tropical Journal of Pharmaceutical Research, 11(4), 683–689.* Retrieved from https://doi.org/10.4314/tjpr.v11i4.21.

Pereira, F.S., Bucaretchi, F., Stephan, C., & Cordeiro, R. (2007). Self-medication in children and adolescents. *Journal of Pediatrics, 83, 453-8.*

Pfaffenbach, G., Tourinho, F., & Bucaretchi, F. (2010). Self-medication among children and adolescents. *Current Drug Safety, 5(4), 324–328. Retrieved from* https://doi.org/10.2174/157488610792246028.

Reinstein, J.A. (2005). Worldwide trend in self-medication. *Dosis, 21(2), 88–96.*

Rony, R.Y., Fortier, M.A., Chorney, J.M., Perret, D., & Kain, Z.N. (2010). Parental postoperative pain management: attitudes, assessment, and management. *Pediatrics 125(6), 1372−1378.*

Santos, D.B., Barreto, M.L., & Coelho, H.L. (2009). Drug use and associated factors in children living in poor areas. *Revista Saude Publica, 3, 768-778.*

Sawalha, A. F. (2008). A descriptive study of self-medication practices among Palestinian medical and nonmedical university students. *Research in Social and Administrative Pharmacy, 4(2), 164–172.* Retrieved from https://doi.org/10.1016/j.sapharm.2007.04.004.

Shankar, P.R., Partha, P. & Shenoy, N. (2002). Sel-medication and non-doctor prespcription practices in Pokhara valley, Western Nepal: a questionnaire-based study. *BMC Family Practices, 3, 17.* DOI: 10.1186/1471-2296-3-17.

Shehnaz, S. I., Agarwal, A. K., & Khan, N. (2014). A systematic review of self-medication practices among adolescents. *Journal of Adolescent Health, 55(4), 467–483.* Retrieved from https://doi.org/10.1016/j.jadohealth.2014.07.001.

Skliros, E., Panagiotis, M., Athanasia, P., Aristofanis, G., Matzouranis, G. (2010). Self-medication with antibiotics in rural population in Greece: A cross-sectional multicenter study. *BMC Family Practice, 8, 1–58.*

Smith, S. M., Schroeder, K., Fahey, T. (2012). Over-the- counter (OTC) medications for acute cough in children and adults in ambulatory settings. *Cochrane Database of Systematic Reviews, 8.*

Tobi, H., Meijer, W.M., Tuinstra, J., de Jong-van den Berg, L.T. (2003). Socio-economic differences in prescription and OTC drug use in Dutch adolescents. *Pharmacy World & Science, 25(5), 203−206.*

Vernacchio, L., Kelly, J. P., Kaufman, D. W., & Mitchell, A. A. (2008). Cough and cold medication use by US children, 1999-2006: Results from the Slone Survey. Pediatrics, 122(2), 323-329. Retrieved from https://doi.org/10.1542/peds.2008-0498.

Wasserfallen, J.B., Bourgeois, R., Bula, C., Yersin, B., & Buclin, T. (2003). Composition and cost of drugs stored at home by elderly patients. *Annals of Pharmacotherapy, 37(5),731–737.*

World Health Organisation (WHO, 2000). *Guidelines for the regulatory assessment of medicinal products for use in self-medication* (Report No. WHO/EDM/OSM/00.1). Geneva, Switzerland: World Health Organisation.

Yousef, A.M., Al-Bakri, A.G., Bustajani, Y., & Wazaify, M. (2008). Self-medication patterns in Amman, Jordan. *Pharmacy World & Science, 30(1), 24–30.*

Yousif, M.A (2002). In-home storage and utilization habits: a Sudanese study. *East Mediterranean Health Journal, 8(23), 422–431*.

APPENDICES

Appendix A: Participant's Consent Form

School of Public Health

College of Health Sciences

University of Ghana

Research Topic: Assessment of self-medication among children in the Tema East Sub-metro of the Tema Metropolitan Assembly.

Introduction

I am ACHEAMPOMAA ANGELA, a student pursuing Masters in Public Health in the School of Public Health, University of Ghana. I am the principal investigator in this study and together with my research assistants we are conducting a study on the above subject.

You are warmly invited to take part in the study. But before you make a decision to take part in the study or not, we would like you to read this consent or let someone read it to you to guide you in making your decision.

There will be no costs for participating in this research and there will be no payments awarded for participating in this research. The only cost you will incur will be the time taken to answer the questionnaire. Apart from the time that will be lost in answering the questionnaire, the invasion of your privacy and the discomfort that may be caused in answering some questions, there are no risk associated with participating in the study. There are also no direct benefits for taking part in the study but the study. The purpose of the study is to determine the factors

influencing self-medication and the findings will help suggest solutions to address self-medication among children under five years.

Confidentiality

Every single information you provide will be held in absolute confidence and data collected in this study are strictly for research purposes and will be stored with passwords on electronic media and in safely locked boxes. Access to the data will be limited strictly to the researcher and supervisor. Anonymity will be ensured in dissemination of findings from this study since participants will not be identified by their names. The data collected will be stored with passwords on electronic media and in safely locked boxes and used strictly for the purpose of research.

Ethical Approval

The study has been reviewed and approved by the Ghana Health Service Ethical Review Committee (GHERC). This committee is there to ensure that participants in researches are protected from harm and their rights are respected.

Participant's Consent Form

I have read the foregoing information/ the foregoing information has been read to me or translated to me in a language that I understand and I have fully understood it. I consent voluntarily to participate in this study.

(Name and signature of a witness should be provided in a case where the participant cannot speak or read English)

Signature/thumbprint: _____

Name of witness: _____

Signature/thumbprint of witness: _____

Interviewer's Statement

I, the undersigned (your name), have explained this consent form to the participant in simple language that she/he understands, clarified the purpose of the study, procedures to be followed as well as the risks and benefits involved. The participant has freely agreed to participate in the study.

Signature of interviewer ……..

Date ……. / …….. / …….

Address:

Telephone number:

Email address:

In case of any concern you can contact the GHSERC Administrator, Miss Hannah Frimpong on: 0243235225 / 0507041223.

Appendix B: Questionnaire

Self-medication among children under five years in the Tema East sub-metro, Greater Accra Region.

Dear respondent,

This is a research carried out on self-medication among children less than five years in the Tema East sub-metro of the Tema metropolitan assembly. I will therefore like to take a few minutes of your precious time to answer these questions. You are assured that the answers you give will be strictly confidential and your name will not be mentioned in my research reports. Thank you.

Qn. No.	Questions	Responses
Section 1	**Demographic Information**	
A.	**Child**	
1.	In the last 2 weeks, has any of your children under 5 years contracted URTI? (symptoms like running nose and cough) 1. Yes 2. No (**Stop interview, move to next selected household**)	|___|
2.	Sex: 1. Male 2. Female	|___|
3.	Age in years (0-4 years)	|___|
4.	Does your child possess a valid NHIS card? 1. Yes 2. No	|___|
B.	**Mother / Caregiver**	
5.	Age in years	|___|___|
6.	Number of children > 5 years	|___|
7.	What is your current level of education? 1. No education 2. Primary 3. Middle/JHS 4. Secondary/ Vocational	|___|

	5. Tertiary	
8.	What is your marital status 1. Not married 2. Married	|___|
9.	What is your spouse's educational level 1. Not educated 2. Primary 3. Middle/JHS 4. Secondary/Vocational 5. Tertiary	|___|
10.	What is your occupation 1. Government Employee 2. Private Employee	|___|
11.	What is your spouse's occupation 1. Government Employee 2. Private Employee	|___|
12.	What is your monthly income (salary plus monies from other sources)	GHS_____
Section 2	**URTI**	
13.	Is your child still suffering from URTI? 1. Yes (**Skip Question 15**) 2. No	|___|
14.	If No, how long did he/she had the URTI? (number of days)	|___|___|
15.	Has your child received treatment? 1. Yes 2. No	|___|
16.	If No, why not? 1. Cultural/ social norms 2. Inadequate income 3. Child not registered on NHIS 4. Self-care orientation (personal) 5. Religious beliefs 6. Not applicable	|___|
16.	Where did the child receive treatment? 1. Health facility (**End interview**) 2. Home remedy 3. Not applicable	|___|
17.	Was the child showing symptoms of URTI such as	|___|

	cough and running nose? 1. Yes 2. No	
Section 3	**Prevalence of Self-medication**	
18	What medication did you give you child?	
	Responsible Self-Medication	**Irresponsible Self-Medication**
Approved medication used:	**Used as directed**	**Not used as directed**
Cough Mixture	3 - 7 days |___|	Less than 3 days |___|
Procold	3 – 5 days |___|	Less than 3 days |___|
Amoxacillin	5 – 7 days |___|	Less than 5 days |___|
Paracetamol	3 – 5 days |___|	Less than 3 days |___|
Other medication specify:_____		
	1. Approved medication used as directed 2. Approved medication not used as directed 3. Not approval/other medication	|___|
19.	Where did you obtain the medicine to treat your child?	
Source:		
Bought OTC	|___|	|___|
Bought OTC using lend old prescription	|___|	|___|
Left over medication	|___|	|___|
Provided by other people (relatives, friends, colleagues)	|___|	|___|
20.	**Deduce from questions 18 and 19:** 1. Responsible 2. Irresponsible	|___|
Section 4	**Factors of Self-medication**	
21.	What influenced you to give this medication to your child?	

Provider Factors	**Tick [✓]**	**Personal/Household/Social Factors**	**Tick [✓]**	**Media Factors**	**Tick [✓]**
Availability of OTCs in my locality	|___|	Self-care orientation and attitude towards medicine	|___|	Advertisement	|___|
Cost of URT treatment	|___|	Storage and use of left-over medicine at home	|___|	Ownership of phone/radio/TV	|___|
		Provision of medicine by family/friends	|___|		
		Social norms	|___|		
		Beliefs and habits of self-medicine	|___|		
		Deduce from question 21: 1. Provider Factors 2. Personal/Household/Social 3. Media Factors			|___|

THANK YOU