THE EFFECTS OF ADVERTISEMENT ON SELF-MEDICATION: CASE STUDY OF EJURA-SEKYEDUMASE MUNICIPALITY

BY

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DECLARATION

I hereby declare that this submission is my own work towards the MA in Economics that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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ABSTRACTS

Self-care, including self-treatment or medication, has been a feature of healthcare for many years (FIP 1996.) According to International Pharmaceutical Federation (FIP) nowadays, members of the public, better informed than in the past, are keen to take more personal responsibility for their own health status. Governments and health insurers encourage responsible self-care to improve the health of the nation and recognize that it may help to limit the rate of increase in third party funded expenditure on healthcare. A study by van den Boom et al. compiled in 2004 noted that access to these facilities remained a problem in Ghana: Medical facilities were not evenly distributed across the country, with most rural areas lacking basic facilities such as hospitals and clinics as well as doctors and nurses leading to people opting for the alternative such as self medication. The dependant is self medication whiles the independent variables includes advertisement, insurance, age, income, radio, television, female, educational status.

The study examines the effects of advertisement on self medication in Ejura municipality. The study uses logistics regression in finding the effects of advertisement on self medication. Primary data is collected from Ejura municipality on what influences them to engage in self medication. The study found that advertisements have much impact on self medication at 5% error level. There is positive relationship between advertisements and self medication. Insurance does not have impact on self medication. The common sicknesses that people perceive that influence them to engage in self medication are malaria and general pains.

It can be concluded that advertisement as a factor influencing self-medication has impact on the likelihood of people engaging in self-medication.

LIST OF ABBREVIATIONS

CQ	CHLOROQUINE
DTCA	DIRECT- TO-CONSUMER-ADVERTISEMENT
FDB	FOOD AND DRUGS BOARD
FIP	INTERNATIONAL PHARMACEUTICAL FEDERATION
OTC	OVER-THE- COUNTER DRUGS
PMS	PATENT MEDICINE SELLERS
PNDCL	PROVISIONAL NATIONAL DEFENDS COUNCIL LAW
POM	PRESCRIPTION-ONLY MEDICINES
UNICEF	UNITED NATION CHILDREN AND EDUCATIONAL FUND
WHO	WORLD HEALTH ORGANISATION
WSMI	WORLD SELF MEDICATION INDUSTRY

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CHAPTER ONE
INTRODUCTION

1.1 Background of Study

Self-care, including self-treatment or medication, has been a feature of healthcare for many years (FIP, 1996). According to International Pharmaceutical Federation (FIP), nowadays, members of the public, better informed than in the past, are keen to take more personal responsibility for their own health status. They are also keen to obtain as much information as possible from expert sources to help them to take appropriate action in healthcare. Consumer research demonstrates that people recognize the pharmacist as an authoritative source of information and advice (FIP, 1996).

Governments and health insurers encourage responsible self-care to improve the health of the nation and recognize that it may help to limit the rate of increase in third party funded expenditure on healthcare. The increase in self-care is due to a number of factors. These factors include: socioeconomic factors; lifestyle; ready access to drugs; the increased potential to manage certain illnesses through self-care; public health and environmental factors; greater availability of medicinal products; and demographic and epidemiological factors (WHO, 1998).

The easy availability of a wide range of drugs and in the case of developing countries, the inadequate health services result in increased proportions of drugs used for self medication compared to prescribed drugs (Shankar *et al.,* 2002).

More than 50% of all medicines worldwide are prescribed, dispensed, or sold inappropriately and 50% of patients fail to take them correctly. Conversely, about one-third of the world's population lacks access to essential medicines. Treatment with medicines is one of the most cost-effective medical interventions known, and the proportion of national health budgets spent on medicines ranges between 10% and 20% in developed countries and between 20% and 40% in developing countries. Thus, it is extremely serious that so much medicine is being used in an inappropriate and irrational way (World Council of Churches, 2006).

A study by van den Boom *et al*., compiled in 2004 noted that access to these health facilities remain a problem: Medical facilities were not evenly distributed across the country, with most rural areas lacking basic facilities such as hospitals and clinics as well as doctors and nurses. The study further said that "Ghanaians on average live about 16 km from a healthcare facility where they can consult a doctor, but half of the population lives within a 5 km radius. By the same token, the other half cannot consult a doctor within 5 km, which corresponds to a one-hour walking distance, and one quarter even lives more than 15 km from a facility where a doctor can be consulted." The Government of Ghana embarked on a health sector reform in the early 1990s to improve the accessibility and quality of services. However, "the health situation in Ghana is still far from satisfactory." Many people in the country still rely on self-medication (van den Boom *et al.,* 2004).

Projects to raise accessibility, however, are underway: The Minister of Health told Parliament in December 2007 "that the Ministry has established 176 health infrastructure projects within a period of five years. This includes 50 Health Centers comprising 22 District Hospitals and 26

Community Health Planning Scheme (CHPS)"(Ghana Parliament, 18 December 2007). Though, all these efforts have been made by various governments but Ghanaians still engage in self-medication as been advised by formal first lady Konadu Agyeman Rawlings " I wish to encourage Ghanaians to embrace medical care and desist from self-medication, thus medication should always be prescribed by a doctor, not a pharmacist"(citifmonline .com September, 2011)

Frequently, "when ill, Ghanaians always apply self medication rather than consult a provider. The patient may go to a drug store or a drug peddler and buy drugs on the advice from the operators whose healthcare knowledge is sometimes questionable (UNICEF, 2002). After the introduction of user fees in 1985, self-medication has become more popular among the entire populace as a means to economize on consultation fees and transport costs" (van den Boom e*t al.,* 2004).

In economically deprived communities, most episodes of illnesses are treated by self-medication. Advertising and Patient information of branded products do not only help consumers understand a product's benefits, but, more importantly, they create trust so that consumers feel confident about the product's quality and are more open to the concept of self-medication. As a result, branded over the counter (OTC) products can raise consumer awareness and initiate the use of self-medication treatments (WSMI, 2005).

In many developing and under developed countries, most episodes of illness are treated by self-medication and is common practice due to quality concerns related to healthcare delivery systems as well as skepticism about the benefits of professional healthcare (Hussain *et al.*,2010). Self-medication and health seeking behavior pattern varies among different populations and are

influenced by many factors like age, gender, education, family, society, law, availability of drugs, exposure to advertisements and nature of illness (Montastruc *et al.,* 1997; Martins *et al,* 2002).

World health Organisation (WHO) promoted the practice of self-medication for effective and quick relief of symptoms without medical consultations and reduce burden on health care services, which are often understaffed and inaccessible in rural and remote areas (Tognoni and Bonati, 1986). Nevertheless, in developing countries, self-medication usually leads to inadequate drug utilization patterns (Laporte, 1997) and is especially worrying when it involves specific diseases (e.g.diarrhoea or common cold) or prescription drugs such as antibiotics.

Government-sponsored health insurance could deter the practice of self-medication. Increasing the proportion of individuals obtaining health coverage under Government health insurance by, for example, 10% could decrease the use of pharmacy consultations by 1.72 and 0.81%, respectively. Also, improved insurance coverage should reduce the demand for self-medication by both making healthcare more affordable and by overcoming skepticism of the potential benefits of modern medicine (Pagan *et al.,* 2006). Winnie et al (undated) found that the impact of rural health insurance in rural China has increased the probability of out patients seeking for formal health care and reduced the probability of self-medication by similar proportion.

Wosinska (2002) found that advertising for cholesterol-lowering drugs has a small positive impact on drug choice but only for drugs with a preferred status on the health plan's formulary. In addition, Wosinska found that detailing has a much more significant effect on drug choice

than does direct-to-consumer-advertisement (DTCA). That study did not evaluate whether the effects of direct-to-consumer-advertisement (DTCA) on drug choice are mediated by individual-level factors such as diagnosis, age, or gender. The effects of DTCA are likely to vary across therapeutic classes because of the differences in the diagnosis and treatment of the condition, the level of disability associated with the condition, and the differences in the features of the medications in that class (Donohue *et al.*, 2004).

A study by Holmer (1999) found that DTC advertising spending accelerated rapidly after 1997, when the Food and Drug Administration provided draft guidance which described how sponsors could disseminate information on drugs and biological products using radio and television. Another study by Dieringer *et al.,* (2011) said that although this relationship could be explained by physician compliance with patient requests for medications, it is also plausible that DTC advertisements have a particular appeal to patients prone to taking multiple medications. Out-patients motivated to discuss medical conditions based on their exposure to DTC advertising may require a careful medication history to evaluate for therapeutic duplication or overmedication.

1.2 Statement of Problem

The issue of self-medication has always been a medical dilemma in that doctors are often unsure about whether it should be encouraged. If used appropriately, self-medication could lighten the demand on doctors and make people more health conscious, because self-medication is often used as an initial response to illness before a patient consults his general practitioner, it may affect clinical diagnosis and management. It is therefore important that doctors, especially

general practitioners, have a good understanding of the characteristics of the practice of self-medication in the population that they serve (WHO, 1998).

According to national drug policy (2004)

- Public advertising materials on drugs, whether in the print or electronic media shall be vetted by the Food and Drugs Board (FDB) and the approval of the Board should be obtained before the material is used and drug promotional activities shall be in line with the National Drugs Policy objectives. In this respect, whenever the brand name of a drug is used in any form of promotional or educational material, the generic name of the drug shall be given due prominence.
- In the case of printed materials, such as advertisements on billboards, posters and publications, the generic name shall be prominent and positioned underneath the brand name as well as promotion and advertisements of prescription-only medicines (POM) and pharmacist recommended medicine shall be restricted to health professional publications only. Promotion and advertising of drugs shall not be permitted at public places including lorry parks and markets and in all modes of transportation except approved by regulations under the Food and Drugs Law 1992 (PNDCL 305B).

They have been a lot of advertisement and sale of drugs in the various lorry parks thereby leading to the promotion of self-medication. It is not clear to what extent has the national policy has been enforced because advertisement of drugs is frequently done but importantly, what extent do these advertisements contribute to self-medication in Ghana is not much known. The study seeks to find the extent to which advertisement contribute to self-medication.

1.3 Objectives of Study

The general objective of the study is to find the effect of advertisement on self medication

The specific objectives of the study include;

- To find the influence of advertisement on Ghanaians that engage in self-medication.
- To investigate the factors responsible for self prescription among Ghanaians.
- To find out the types of illness which people often perceived that makes them to indulge in self-medication.
- To find out why health insurance is available but people still engage in self-medication.

1.4 Hypothesis

H_0: Advertisement does not affect self-medication.

H_1: Advertisement affects self-medication.

1.5 Justification of the Study

Self-medication is becoming an increasingly important area within healthcare. It moves patients towards greater independence in making decisions about management of minor illnesses, thereby promoting empowerment. Self-medication also has advantages for healthcare systems as it facilitates better use of clinical skills, increases access to medication and may contribute to reducing prescribed drug costs associated with publicly funded health programmes. However, self-medication is associated with risks such as misdiagnosis, use of excessive drug dosage, prolonged duration of use, drug interactions and polypharmacy. The latter may be particularly problematic in the elderly. Monitoring systems, a partnership between patients, physicians and pharmacists and the provision of education and information to all concerned on safe self-medication, are proposed strategies for maximizing benefit and minimising risk (Hughes *et al.,* 2002).

Medicines, labelled as prescription only (including antibiotics), are sold without prescription, even in the formal sector. They are for sale in drug stores, general shops, kiosks and market booths, and peddlers bring them to remote villages and homesteads. Dispensers are usually prepared to negotiate the type and quantity of drugs with customers, and clients' purchasing power is often the ultimate deciding factor. Dispensers frequently defer to clients' ideas on appropriate care and necessary medicines. It is often difficult to differentiate whether pharmacy attendants or customers determine the medicines to be purchased (Radyowijati *et al.,* 2002).

The rapid growth in antimicrobial resistance demands concerted action. Governments, public and private institutions, and medical leaders need to implement policies and programs that encourage changes in the way antibiotics are used.

The study would afford the authorities to know the role that advertisement of drugs by drugs marketing companies play in self-medication and their effects on the general public. This would make the authority to adopt appropriate measures that will ensure that the right information is given out.

Furthermore, the study would give information about the role that chemical stores play in promoting self-medication which most often than not leads to resistance of the pathogens which affects future generation as they are born. These would help the government check and regulate the operations of drug sellers so as to curb these situations. This study will afford the government to know that most advertisement of drugs affects the consumers especially the illiterates who do not know much about drugs.

1.6 Methodology and Data Analysis

Primary data was employed by this study. The reason for using primary data is that, the study used information from health care consumers which did not exist for analysis. The study used personally administered questionnaires to gather information related to the subject matter.

Random sampling method was used in selecting respondents within population in the study area. Respondents gave information on age, income level, educational level, employment, insurance

status and whether they have indulge in self-medication before as well as their sources of information that informed them about the drug or drugs. Descriptive and quantitative methods were used for data analysis. Specifically, the study used logistic regression model as the empirical method of estimation under quantitative method.

1.7 Scope of the Study

The study was undertaken in Ejura which is the district capital of Ejura-Sekyedumase municipality, simply being that the district hospitals as well as a good number of licensed chemical stores are located in the district capital. They are also exposed to a lot of advertisement through both electronic as well as print media and also friends. Ejura is also chosen because of proximity to the study and resource constraint encountered in the study. In total, sample populations of 400 were used to represent the people of Ejura. A larger sample could have been used, however due to time and resource constraints, 400 people were used for the study.

1.8 Organization of the Study

This study is organized into five chapters. Chapter one deals with introduction whereas chapter two and chapter three deal with the literature review and methodology respectively. The data analysis and results is covered in chapter four. Finally, chapter five contains summary of findings, recommendations and conclusion.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The idea of self-medication has taken center stage of late looking it importance as well as its adverse effects on the people. The proliferation of commercially produced pharmaceuticals and a concurrent rise in medicine consumption is a concrete expression of health commodification. It entails the commodification of health to a point where medicine fixes to life's immediate problems, increasing 'appeal' to the public. Health commodities do not have to be pushed, they are demanded (Child Health Research Project Special Report, February 2002). Rational use of drugs has drawn public health attention globally with the aim of maintaining quality health care at lower costs (Bazaldua and Ables, 2003). As dispensing medication in an appropriate way is a cornerstone of rational use, the dispenser should be regularly updated with information, tools and skills (Vacca *et al.*, 2005).

This chapter therefore reviews theoretical and empirical literature on effects of advertisement on self-medication.

2.1 Definitions of self-medication

Internationally, self-medication has been reported as being on the rise (WHO, 1998). Self-medication is defined as the use of medication by a Patient on his own initiative or on the advice

of a Pharmacist or a lay person instead of consulting a medical practitioner. In 1919, the American Pharmaceutical Association estimated that, of the 3.5 billion health problems treated in the USA annually, 57% were treated with a non prescription drug (Poprich *et al.,* 2000). The World Health Organization has emphasized that self-medication must be correctly taught and controlled (WHO, 1998). Antimicrobial resistance is a current problem worldwide particularly in developing countries where antibiotics are often available without a prescription. Unfortunately, especially in developing countries, professional health care is relatively expensive and in some cases not readily available therapy making self-medication an obvious choice of healthcare service (Chang *et al.*, 2003).

It has been noted that purchase of drugs and many drugs that can only be purchased with prescription in developed countries are over-the-counter (OTC) in developing countries. Self-medication is defined as the selection and use of medicines by individuals (or a member of the individuals' family) to treat self-recognized or self-diagnosed conditions or symptoms. Self-medication is far from being a completely safe practice, in particular in the case of non-responsible self-medication (Ruiz, 2010).

Self-prescription includes diagnosing and treating one's own illness and prescribing for one's self. This is also referred to as self-medication. Self-medication can be defined as obtaining and consuming drugs without the advice of a physician either for diagnosis, treatment or monitoring of treatment (Montastruc *et al.*, 1997). This includes acquiring 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. Self medication is the use of any medicine for the treatment of oneself of any ailment without a physician's

prescription. Such ailments may be fever, body pains, indigestion, diarrhoea, etc. In any case, several people, friends, relatives and even patent medicine sellers (PMS) may advise the sick person on the type of medicine to take as a cure. The medicine may be an herb or a conventional drug which may be bought over the counter. This practice constitutes what is called self medication (Costa *et al.*, 2004).

Wikipedia defines self-medication as a term used to describe the use of drugs (including alcohol) or other self-soothing forms of behavior to treat untreated and often undiagnosed mental distress, stress and anxiety, including mental illnesses and/or psychological trauma. In developing countries like India, easy availability of wide range of drugs coupled with inadequate health services resulting increased proportions of drugs used as self-medication compared to prescribed drugs (Shankar *et al.,* 2002). Also in Burkina Faso and many other countries the most frequently used drugs for self-treatment of fever are chloroquine (CQ) and paracetamol (Muller *et al,*2003), but dosage and duration are not always correct (Deressa *et al.,*2003).

Self-medication is practiced around the world, although there has been restriction and effective control in some developed countries. At present there is debate on the deregulation of more medicines to over the counter status (Bradley and Blenkinsopp, 1996).

Self-care refers to care at the home and comes in the form of caregiver diagnosis, tepid sponging (i.e. washing the sick child's body with warm water to reduce temperature) and/or treatment using self-made herbal remedies or left-over prescriptions and/or doing nothing. Non-formal providers exist in rural Ghana. These include traditional healers, spiritualists, and drug peddlers. Chemical sellers are sometimes put into this group because, even though chemical stores are

supposed to be manned by people specifically trained to diagnose illnesses and give first aid treatment, the reality is that most of such stores are operated by untrained people **(**Nonvigon *et al.,* 2010**).**

Self-care may be defined as the care taken by individuals towards their own health and well being, including the care extended to their family members and others. In practice self-care includes the actions people take to stay fit and maintain good physical and mental health; meet social and psychological needs; prevent illness or accidents; avoid unnecessary risks; care and self-medicate for minor ailments and long-term conditions; and maintain health and well being after an acute illness or discharge from hospital (WSMI, 2006).

The World Self-Medication Industry (WSMI) has defined self-medication as "the treatment of common health problems with medicines especially designed and labelled for use without medical supervision and approved as safe and effective for such use" (Bhatnager, 2011).

Self-medication is an area where governments and health authorities need to ensure that it is done in responsible manner, ensuring that safe drugs are made available over the counter and the consumer is given adequate information about the use of drugs and when to consult a doctor (Hughes *et al.,* 2002). Unlike other aspects of self-care, self-medication involves the use of drugs, and drugs have the potential to do good as well as cause harm. In this context, the Pharmacist has an important role (WHO, 1998).

Alternative treatment options for childhood illnesses in Ghana can, broadly, be categorized into: self-care or self-medication, care from over-the-counter (OTC) providers, public providers (public health centers, clinics, and hospitals), private providers (private health centers, clinics, hospitals). Self-care is an indigenous form of treatment (Dzator *et al.*, 2004).

The inappropriate use of drugs has medical and social implications and may exert undue financial burden on the health care system as well as on patients. For example, drugs are estimated to constitute 60 - 80 % of the cost of health care in Ghana. It is the responsibility of the state to ensure that certain functions in the pharmaceutical sector are clearly defined and implemented. A national drug policy forms the basis of government's responsibility to ensure access of its citizens to good quality drugs at affordable prices, enacting drug regulations, developing professional standards, and promoting the rational use of drugs (national drug policy, 2004).

The interventions introduced to improve the use of medicines have resulted in some gains including a reduction in the average number of drugs prescribed per out-patient encounter from 4.6 to 3.7. In addition, the proportion of out-patients receiving antibiotics and injections have reduced from 54% and 38% to 42% and 33% respectively. However, as in most developing countries, inadequate control of drug promotion and drug dispensing by untrained prescribers has left a wide gap in the promotion of rational use of drugs (national drugs policy, 2004).

2.2 Theoretical review

Chang and Trivedi (2003) argue that professional care is a normal good and self-medication is an inferior good. Therefore, the incidence of self-medication should fall as income increases; at least when income rises above a certain threshold beyond which individuals would begin to consult professional medical care. The model also implies that the demand between these goods is probably sensitive to relative prices. Health insurance coverage makes professional care

relatively less expensive; and thus, it could lead to more medical care utilization and less self-medication.

Akpalu (2005) argue from the optimization program that indicates that the decision to self-medicate depends on the relative price of the two medications (i.e. an individual may switch to self-medication if it becomes relatively cheap), the perceived effectiveness of self-medication, the elasticity of the shadow value of health with respect to the quantity of health capital and the relative effectiveness of self-medication in reducing the uncertain component of the dynamics of the health capital. Furthermore, he illustrates that self-medication is a normal good for those who engage in it: thus, it increases if income increases; and it obeys the law of demand (i.e. it increases if its relative price decreases). According to him, the optimal subsidy that can discourage self-medication must be decreasing in both the relative price and the perceived effectiveness of the self medicated drug but increasing in the elasticity of the shadow value of the health with respect to the quantity of health capital, if the self-medicated drug is more effective in reducing the unexpected shocks to health capital.

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2.3 Empirical review

Advertising is suited to the transmission of simple, focused messages. When consumers require detailed information about certain health products, they pursue many sources, such as package inserts, websites, etc., to inform their product decisions. Comparatively, advertising ranks low as a source of information by which consumers make decisions. Product labels and advice from healthcare professionals continue to be the most highly valued sources of information. However, advertising does have a role to play by providing consumers with the awareness needed to begin the search for an appropriate product when the need arises. The key role of television advertising

is to establish awareness of product choices and to articulate the key benefit to a mass audience. To be effective, this advertising must be simple and consumer friendly (Blinn, 1999).

Considerable controversy surrounds the practice of direct-to-consumer (DTC) marketing of pharmaceuticals. While some argue that DTC advertising serves as an educational resource for patients (Holmer, 1999), others say that DTC advertising contributes to the medicalization of trivial ailments, and leads to overuse and misuse of pharmaceuticals (Rados, 2004).

Dieringer *et al.,* (2011) did a study on self reported responsiveness to direct to consumer advertisement and medical use using data from U S. he used data from national telephone survey of adults in the US investigating the demographic and attitudinal effects of direct-to consumer advertising of survey respondents. The study employed statistical tool such as chi-square and t-tests. They found that there is no relationship between the number of OTC medication taken and the propensity to discuss health related problem in response to direct-to-consumer advertisement. There is strong linear relationship between self-medication, demographic and socio-economic factors.

A study conducted by Donohue M. J. and Berdt E. R. (2004) on the effects of direct-to-consumer advertisement on medication choice. The study used structured questionnaire and multinomial logistic model as well as descriptive statistics. The study found that direct-to-consumer advertisement for antipressant has little effects on drug choice. The study examined whether the effects of pharmaceutical promotion varied by individual characteristics, in response to changes in the regulatory environment, and over the course of a product's life cycle. Whereas DTCA spending did not appear to influence drug choice for people with major depression, it had a

positive and statistically significant effect on medication choice for people who were diagnosed with anxiety disorders.

A study conducted by Joan Buckley (undated) on proper pharmaceutical marketing – time for change found that there is negative impact on self medication as a result of misleading advertising, disease mongering and escalating cost on medical care.

Andualem (2002) did study on people knowledge in self medication and their perspective in Addis Ababa, Ethiopia and found that the most common reasons for self-diagnosis and self-medication were non-seriousness of the diseases and prior experience about the drugs. While much has been written regarding consumer and physician attitudes toward DTC advertising, less is known relating Patient characteristics, notably medication use, and responsiveness to DTC advertising (Dieringer, 2011). One survey found that respondents attitude towards DTC advertising were more likely to be nonwhite, have lower educational attainment and lower income, (Robin *et al.*, 2004) whereas Bell found that women, as well as persons with a positive attitude towards DTC advertising, in poorer self-reported health, and with better self reported insurance coverage of medications were more likely to respond to DTC advertising (Bell *et al.,* 1999).

A study done by Moran and Kosali (2005) on income and the use of prescription drugs by elderly using evidence from notch cohorts in US. The study used exogenous variation in Social Security payments created by the Social Security benefits notch to estimate how retirees' use of prescription medications responds to changes in their incomes. In contrast to estimates obtained using ordinary least squares, instrumental variables estimates based on the notch suggest that

lower-income retirees exhibit considerable income sensitivity in their use of prescription drugs. It found small and statistically insignificant effects of income on the number of prescriptions used by each household when these effects are estimated by ordinary least squares.

By contrast, when the benefits notch is used as an instrument for household Social Security income, they found large and statistically significant effects of income on drug use across all three model specifications, with the magnitude of the income effect rising a bit as tighter controls for age are incorporated. Focusing on the quadratic age specification, our coefficient estimate indicates that a $1000 increase in Social Security income (in 1993 dollars) would increase the number of prescription medications used in a typical month by approximately 0.55 per household. Evaluated at the mean levels of drug utilization and Social Security income in the sample translates into an elasticity of approximately 1.32, implying a high degree of income sensitivity on the part of lower-income retirees (Moran and Kosali, 2005).

A study compiled by Michele cocks and Anthony Dold (-) on the role of "African chemists" in health care system in the Eastern Cape province of South Africa. The study employed standardized questionnaire on the target group at the various drugs outlet in the province. The study uses descriptive system of analysis and it found that they were more female (54%) consumers than male (47%). Those who seek healthcare from African chemist had low level of education. The study also found that self medication was major factor in curing sickness at initial stage and African chemist play part.

A recent report by WHO revealed findings of up to 90% resistance to original first-line antibiotics such as ampicillin and cotrimoxazole for shigellosis, up to 70% resistance to penicillin for pneumonia and bacterial meningitis, up to 98% resistance to penicillin for gonorrhea, and up to 70% resistance to both penicillins and cephalosporins for hospital-acquired staphylococcus aureus infections. In 2000, the FIP Council adopted a Statement of Policy on Control of Resistance to Antimicrobials which provides a list of recommendations for governments and health authorities on the appropriate measures needed to combat antimicrobial resistance. The statement also declares that pharmacists are ready to collaborate actively with physicians, regulatory authorities and other health professionals in efforts to combat antimicrobial resistance and to participate in public information campaigns (Wiedenmayer k. *et al.*, 2006).

Men play a paramount role in determining the health needs of a woman. Since men are decision makers and in control of all the resources, they decide when and where woman should seek health care. Women suffering from an illness report less frequently for health care seeking as compared to men. The low economic and social status of women prevents them from recognizing and voicing their concerns about health needs. Women are usually not allowed to visit a health facility or health care provider alone or to make the decision to spend money on health care. Thus women generally cannot access health care in emergency situations. This certainly has severe repercussions on health in particular and self-respect in general of the women and their children. Despite the fact that women are often the primary care givers in the family, they have been deprived of the basic health information and holistic health services.

Women normally resort to self-medication because they do not have much economic power to demand for professional care (Babar T. Shaikh and Juanita Hatcher, 2004).

Correct prescription does not guarantee that drugs are used properly. Non adherences to doctors' prescription are very common. Self-medication and health seeking behavior pattern varies among different populations and are influenced by many factors like age, gender, education, family, society, law, availability of drugs, exposure to advertisements and nature of illness (Martins *et al.,* 2002).

However, reports indicate that in Ghana the issue goes further than seeking advice from those who substitute the lack of personnel. For instance, self-medication in Ghana, according to van den Boom *et al.*, has three dangerous patterns: firstly, self-medication may be forced on patients due to their socioeconomic conditions; secondly, they might consume leftover and often expired drugs; thirdly, untrained chemical sellers might take "experts roles" and decide upon their clientele's medication (van den Boom *et al.,*2004)

Pfeiffer *et al.,* (2008) did empirical review on self-medication of chloroquine (CQ) in rural Burkina Faso and found that self medication with prescription drugs will increase without prescription for CQ even with the availability of resistances. Michael *et al.,* (2004) on a conceptual framework to study medication adherence of older adults, found that cognitive is needed to manage and take medication by older decline with ageing, the number of prescriptions and non prescription medication consumed increases.

A review of the study done by Shveta and Jagmohan (2011) on self medication pattern in Punjab, found that self medication was high with educated group rather than the uneducated group. They also concluded that most of them go for the dose without prior knowledge of the dose. It was also found that self medication was influence by advertisement. A study conducted on the practices of self-medication in Hong Kong by Cindy (1989) found that drug stores sales men and advertisement were the common source of information or advice.

A study done by Rohit *et al*., (2010) on evaluation of self medication among professional students in north India using questionnaire and survey consisting of both open ended and closed ended. The study employed descriptive system of data analysis and found that student follows advertisement and pharmacists for information for self medication.

A study by Gupta *et al.,* (2011) on determinants of self medication practices in an urban slum community in India using cross sectional data, descriptive and questionnaire based survey. The study found that most common reasons for self medication were monetary constraints (40.5%). It also found that higher proportion (47.5%) of the individuals practicing self medication amongst the population is found between the age group of 18-35. The commonest illness that which often leads to self medication in the study was headache, fever, and diarrhoea.

A study by Radyowijati *et al.,* (2002) on determinant of antimicrobial use in the developing country found that self-medication is often seen as important determinant of the improper use of antibiotics, it was also found that the decision to purchase drugs is influenced by poverty, lack of access to appropriate health care and drug company marketing are also believed to cause improper use of antibiotics.

Van Saa A. L. (1993) studied the popularity of antimicrobial drugs, particularly metronidazole, in treating diarrhoea in the Philippines. Special research was carried out on the role of pharmaceutical industries in promoting the use of anti-amoebic drugs, and their relationship with doctors and dispensers in the Philippines. Data on attitudes, beliefs, and practices of caretakers in diarrhoea case management were collected from secondary sources, such as national household surveys and local research reports. The study collected data from prescribers and dispensers in several settings in Metro Manila, using structured and informal interviews. The study emphasis was on describing diarrhea case management, factors that influenced antimicrobial prescribing, and providers' views of the Diarrhoea Control Program. To investigate these factors, the study used unobtrusive observations in a random sample of all registered pharmacies, as well as responses to a fictitious case by pharmacy clerks. The same pharmacies were later surveyed with a structured questionnaire, in order to increase the validity of findings. Doctors and caretakers firmly believe that diarrhoea is infectious and in the need to eradicate all "mikrobyo." These beliefs are reinforced by extensive marketing and by frequent drug samples distributed to doctors by pharmaceutical company representatives (Van Saa, A (1993).

A study by WHO in Bangkok (2009) to find the impact of self care in the context of primary health care found that good health care depends on knowledge and understanding of the individual. It also found that primary health care depends on people abilities to control their own selves.

A study by Charles *et al.,* (1962) about the appearance of pyrimethamine resistance in plasmodium falciparum following self-medication by a rural community in Ghana and found that emergence of this high grade drug resistance was attributable to irregular self administration by

the local population of the tablets collected for each household. The study also concluded that most of them go for self-medication without prior knowledge of the dose. It was also found that self medication was influence by advertisement as well as the direction of the chemist.

A review of a study by Boateng (2009) on self-medication practice by doctors and pharmacist at the Korle Bu teaching hospital, using structured questionnaire and analyzing the data with table and percentages. The study showed that there is high rate of self- medication or self-prescription among doctors and pharmacist. The factors contributing to self-medication is exposure to drugs and knowledge of the treatment of diseases.

A study by Hussein *et al.,* (2011) on the prevalence of self-medication and health-seeking behavior in the developing country using randomized, cross-sectional, questionnaire-based, multi-center study of the prevalence of self-medication in five (5) cities of Pakistan that is, Lahore, Sialkot, Gujranwala, Faisalabad and Sargodha. The study was conducted from June, 2009 to May, 2010 and was materialized through a survey amongst a sample of randomly selected rural and urban households using both quantitative and qualitative aspects of medicines use. The study found that people are interested in using the services of qualified doctor but their services were not available around the clock in the majority of the areas. It was found that majority of people in Pakistan sells drugs without prescription.

A study done by Pagan *et al.,*(2006) on self medication and health insurance in Mexico used data from the first wave of the Mexican Health and Aging Study (n = 15,156), a nationally representative prospective panel study covering both urban and rural areas in all 31 states of Mexico and the Federal District. A logistic regression was used to analyze how health,

demographic and socioeconomic factors are related to self-medication. The study found that self-medication is related to socio-economic status and the lack of access to professional healthcare. These empirical evidences suggest that lack of government sponsored healthcare coverage could increase the propensity to self-medicate.

Nonvigon *et al.,* (2010) did a study on the treatment choices in children under-five in a rural Ghana districts. They used data from 2006 household socio-economic and health and demographic surveillances covering caregivers 579 children under- five years of age in the Ga-Dangme west district and applied multinomial probit model to model the choice of treatment for fever under-five years in rural Ghana. The findings indicate that longer waiting time and treatment time encourage people to use self-medication and over the counter treatment compared to public and private owners. Also, they found that caregiver with health insurance uses public care and those caregivers with male under-five uses public health services whiles caregivers with female under-five uses self-care.

A study by Maldonado *et al.,* (2006) on long term effects of an educational intervention on self-medication and appropriate drugs use in single sex secondary public school, Quito, Ecuador using proportional comparism test and it was found that, it is possible to achieve favorable modification of attitude of appropriate drugs use in a teenage population through health education of the general population.

An empirical review of work done by Abbay *et al.,* (2010) on assessment of self medication practices among pharmacy, medical and health science students in Gondor University in Ethiopia using chi square test found that the major source of information for most of those who engage in

self-medication was reading material. It was also found that prescription drugs such as antibiotic were used for self-medication.

An empirical study by Assenso-Okyere *et al.,* (1998) on the impact of health care seeking behavior of the costs sharing policies introduced in Ghana between 1985 and 1992 in some selected districts in Ashanti using qualitative data analysis and found that cost recoveries policies have led to the increase in self-medication. They also found that there is an increase drug supply situation in the country with cost recovery policies.

An empirical study done by Jombo *et al*., (2010) on the assessment of types of drugs used for self-medication for malaria among adult women in Makuri city, Nigeria. The study used cross sectional data involving adult women who are selected from households using systematic sampling methods. Qualitative data and Pearson correlation method were used in analyzing the data. It was found that there are strong correlations between low economic status, low education level and unemployment and self medication for malaria.

A study done by Afolabi (2008) on the factors influencing the pattern of self-medication in an adult Nigeria population using descriptive statistics as well as chi-square test found that literacy and public health education was the major factors influencing the pattern of self-medication among market women in Nigeria.

In conclusion, the various studies that have been reviewed indicate that educational level, advertisement, information from chemist, financial constraints etc influences people to self-medicate. This study finds the extent of the effect of advertisements on self-medication and how the introduction of national health insurance turns to offset gravity of self-medication. The study used logistic regression model to estimate the extent of the effect of advertisement on self-

medication. The reason is that, drugs are being advertised always in both electronic and print media which often affect the psychic of the targeted population but the extent of the effects is not much known.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter takes into consideration data collection method and the study design to determine whether advertisement of drugs have effects on people that encouraged them to engage in self-medication. It takes into consideration whether demographic and socio-economic characteristics of people make them to engage into the practice of self-medication. It looks at whether the introduction of national health insurance has offset the impact of advertisement on self-medication. Descriptive and quantitative methods are used for the data analysis. The study used logistic regression as the empirical method of estimation under quantitative method.

3.1 Study Area and Population

Ejura Sekyedumase district is located within longitudes 1˚5W and 1˚39' W and latitudes 7˚9' N and 7˚36'N. It has a large land size of about 1,782.2sq.km. (690.781sq.miles) and is the fifth largest district in Ashanti region's 21 districts. It constitutes about 7.3% of the region's total land area with about one third of its land area lying in the Afram Plains. It is located in the Northern part of the Ashanti Region and is bounded in the north by Atebubu and Nkoranza districts (both in the Brong Ahafo region), on the west by Offinso district, on the East by Sekyere East district and the south by Sekyere West and Afigya Sekyere district. (Ministry of Local Government and Rural Development, 2006).

Ejura-Sekyedumase district currently has a population of 89227. Between 1984 and 2000, the population increased from 60,997 to 89,227. However considering the rate of growth, it could be deduced that the population increases at a decreasing rate. The increase in the absolute figures is attributable to the fact that the district serves as the immediate- tie between the north and the south so harbours most northern extracts that are in search of greener pastures. It also worth-mentioning that Ejura-Sekyedumase district served as the major food basket during the 1983 famine therefore attracted people from all walks of life (Ministry of Local Government and Rural Development, 2006).

The age-sex structure of the District population is typical of the rural Ghanaian situation. The population pyramid has a broad base which tippers to the top. Males slightly outnumber their female counterparts. Males constitute 51.7% whilst females constitute 48.3%. This is the opposite of the national figures (males- 49% and females-51%). Within the female populace, 39% are within the reproductive age group (15-49 years). 53% of the population fall within the economic active group, 40% are within the school going age where as 7% constitute the aged. This brings the dependency ratio to 1:0.89. This implies every 100 persons cater for themselves and an additional 89 persons (Ministry of Local Government and Rural Development, 2006).

The district has seven health facilities all working to promote the health conditions of a population of 89,227. Two out of the seven health facilities have attained the status of a hospital; four of them are also clinics and the remaining one being a health centre. The district hospital is located at the district capital, Ejura with the other at Kasei in the north-eastern part of the district. Communities like Homako, Nkwanta, Nyamebekyere, Zambrama and Anyinasu have clinics whilst the only health care centre in the district is located at Sekyedumase (Ministry of Local Government and Rural Development, 2006)

The district has 3 doctors and in relation to the total population of 89227 gives an unfavourable doctor-population ratio of 1:29742 as against the current national ratio of 1:20000. It is even worse as compared to the UN standard of 1:5000. In a well-accepted environment, the district should have not less than 18 doctors to support this population and more measures should be put in place to increase their numbers. The nurse-population ratio is 1: 3879. According to the National Planning standard, a hospital should have at least 250 beds; and comparing this to the health status quo of the district (two hospitals with 99 beds), plans should be made to increase them to suit the status of hospital to ease pressure on these facilities (Ministry of Local Government and Rural Development, 2006).

3.2 Sampling Method and Sample Sizes

Cluster sampling method was used in selecting a particular electoral area that the population must be interviewed. The electoral area includes Dagombaline, Sabonline, Ashakoko,kotokoli line etc. through random sampling Dagombaline was chosen. Random sampling method is used by this study in selecting individual in the study area. The study employed these to ensure that all have equal opportunity of been selected since the population size in Ejura community is large. In total, sample of 400 are used to represent the community. This population constitutes the population that was interviewed to solicit information about self-medication. These sample sizes was chosen because of financial and resource constraints as well as time constraints.

3.3 Method of Data Collection

Primary method of data collection was employed in the study. Primary data is used in the study because information from the population about effects of advertisements on self-medication on

them is not available for analysis. The study used personally administered questionnaires to gather information related to the subject matter. The questions were centered on the effects of health insurance on treatment seeking behaviour of health care consumers, sources of information for self-medication, reasons for self-medication while having insurance, illness that often prompt them to engage in self-medication etc. The definition of monstactruc et al., (1997) was used in the study to constitute what self medication is. They define Self-medication as includes diagnosing and treating one's own illness and prescribing for one's self. This is also referred to as self-medication. Self-medication can be defined as obtaining and consuming drugs without the advice of a physician either for diagnosis, treatment or monitoring of treatment or the used of past prescription (Montastruc *et al.*, 1997). An advertisement includes radio, television and other platform used for advertising drugs.

Reason for using primary data is affirmed by Berg (2007); According to Berg (2007) the lasting contribution of social understanding of qualitative research as well as the sheer contribution of social thinkers is significant. Qualitative research seeks answers to questions by examining the various social setting and individual who inhibits those setting. Qualitative research such as questionnaire provides a means of assessing the unquantifiable facts about the actual people's research.

Veal (2006) showed that qualitative research is often based on the belief that, the people personally involved in a particular situation are best placed to describe and explain their experiences or feeling in their own words. Qualitative methods are ideal for exploring attitudes, meanings and perceptions about a situation.

3.4 Data Analysis

Descriptive (qualitative) and quantitative methods are used for the data analysis. Descriptive methods provide a deeper analysis and allows for a richer and an in-depth understanding of how people make meaning of their situation or interpret phenomena. By descriptive statistics, the study used tables and percentages to describe the data on effects of advertisement on self-medication taking into consideration the various factors affecting self-medication in the sample population.

Quantitative study is usually based on causal inference and the use of standardized measures to produce qualified data that can be statistically analyzed (Patton, 2002). As Strauss and Corbin (1990) state, quantitative methods are useful to unveil knowledge and to facilitate our understanding on phenomenon that little is known about. This means that using quantitative method is appropriate for the study.

3.5 Methodology employed by other studies

Afolabi (2008) employed semi structured questionnaires to analyze the factors that influence self-medication in adult Nigeria population. Rohit *et al.,* (2011) also employed similar method in evaluation of self-medication among professional students in north India. Also, they used chi square in analyzing the factor affecting self-medication among profession student in north India.

It must be noted that, most of the studies reviewed used descriptive method to analyze the parameters or factors causing people to engage in self-medication. In these study, advertisement been one of the factors influencing people to engage in self-medication is analyzed to ascertain

the effectiveness or how significant it is in influencing people to engage in self medication. Logistic regression is used as stated in Stock and Watson (2007). Logistic regression is used, because self-medication is dichotomous variable therefore making it impossible to use ordinary least square (OLS) method.

3.6 Empirical Estimation of the model

Logistic regression model is used by the study to determine the likelihood of self-medication behavior among the sample population. The study used sample response as to whether they have engaged in self-medication in the immediate past when they fell ill. And reasons responsible for these actions was solicited.

Let Y_i (Binary variable) represents the observed response of each sample population (ith observation). Therefore, $Y_i = 1$ for self-medication and $Y_i = 0$ for no self-medication. It follows that:

$Y_i = g(X_i)$

Where g is the functional form of the model. These show the relationship between self-medication and others factors affecting self-medication. This is specified as shown in Stock and Watson (2007). This is shown below

3.6.1 Using general advertisement

$$Y_i = \ln\frac{p}{1-p} = \beta_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \varepsilon_i$$

Where Y_i = Qualitative dependent variable: 1 if self medicate; 0 if no self-medication

X_2 = Age

X_3 = Monthly Income

X_4 = Dummy variable (X_4= 1 if female, X_4= 0 if male)

X_5 = Dummy variable (X_5= 1 if insured, X_5= 0 if uninsured)

X_6 = Dummy variable (X_6= 1 if basic education, X_6= 0 if otherwise)

X_7 = Dummy variable (X_7= 1 if senior high education, X_7= 0 if otherwise)

X_8 = Dummy variable (X_8= 1 if tertiary education, X_8= 0 if otherwise)

X_9 = dummy variable (X_9 = 1 if exposed to advertisement, X_9 = o if otherwise)

ε_i = Stochastic error term.

3.6.2 Using the various medium of advertisement

$$Y_i = \ln\frac{p}{1-p} = \beta_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \varepsilon_i$$

Where Y_i = Qualitative dependent variable: 1 if self-medicate; 0 if no self-medication

X_2 = Age

X_3 = Monthly Income

X_4 = Dummy variable (X_4= 1 if female, X_4= 0 if male)

X_5 = Dummy variable (X_5= 1 if insured, X_5= 0 if uninsured)

X_6 = Dummy variable (X_6= 1 if basic education, X_6= 0 if otherwise)

X_7 = Dummy variable (X_7= 1 if senior high education, X_7= 0 if otherwise)

X_8 = Dummy variable (X_8= 1 if tertiary education, X_8= 0 if otherwise)

X_9 = dummy variable (X_9 = 1 if exposed to radio advertisement, X_9 = 0 if otherwise)

X_{10}= dummy variable (X_{10} = 1 if exposed to television advertisement, X_{10}= 0 if otherwise)

ε_i = Stochastic error term.

3.7 Expected signs of the estimated parameters

The study expects age (X_2) to predict positively about the likelihood of the existence of self-medication among the sample population. A positive sign of β_2 means that as an individual advances in age, there is a high tendency for the person to engage in self-medication. This is because the young adult are likely to be engaged in active labour supply for a living compared to the aged. The implication is that the older are likely to fall sick. Because of deteriorating health conditions and in order to maintain healthy life, are more likely to engage in self-medication as compared with young population.

The study expects income (X_3) to predict positively about the likelihood of self-medication among sample population of the study. A positive sign of β_3 suggests that an increase in income increases the tendency for the individual to engage in self medication behaviour. Because increase in income is associated with long working hours, the individual would not have enough time to go to health center thereby engaging in buying drugs from drugs salesmen resulting in the increase in self-medication among the population. Self-medication is likely to increase with an increase in income but likely to be low among those who work with less hours. Those who work with fewer hours are likely to get enough time to attend hospital to assess health care thereby reducing the incidence of self-medication.

Females (X_4) are expected to have a higher tendency to engage in self-medication behaviour than males (control group). Therefore the expected sign of β_4 is positive. In the family context, men are expected to cater for the home with the support of women. Most women in the study area are

unemployed or house wives. When they fall sick, they resort to self-medication because they cannot afford professional care. Women are likely to engage in self medication as compared to male due to the fact that male contributes for the upkeep of women in the setting of the research therefore may compel women to engage in self-medication if their husbands cannot provide them with money to attend hospital.

The study expect that insured (X_5) to predict negative relationship between the likelihood that people who insured would engage in self-medication. Therefore the expected sign of β_5 is negative. People who are insured, when ill fall sick are likely to attend hospital because the cost of them receiving care from hospital are virtually zero, giving them momentum to ignore self-medication as substitute for professional care. On the other hand people who do not have health insurance are likely to engage in self medication because the cost of attending hospital is catered by them thereby making then to opt for self-medication.

Health care consumers with basic education (X_6), senior high education (X_7) and tertiary education (X_8) are expected to have less incentive to engage in self-medication behaviour than those without any formal education (control group). Therefore the expected sign of β_6, $\beta 7$ and β_8 is negative. The educated is expected to read and understand the dosage of a particular drug as compared to the uneducated. This therefore makes the educated to indulge less in self-medication as compared to those who does not have formal education. Educated person is likely to know about the adverse effects of drugs and are likely to consult physician for advice as compared to uneducated person who does not have any understanding of the adverse effects of drugs unless the drugs is taken before the symptoms would be experienced.

Advertisement (X_9) is expected to have positive relationship in the likelihood for people to engage in self-medication. Therefore the parameter β_9 is expected to be positive. The reason being that as drugs is been advertised on both electronic as well as print media, it appeal to their psychic which influence their decision to purchase drugs thereby increasing the rate of self-medication among the population. In other words, drugs being advertised are likely to influence people to engage in self medication either than go to hospital to assess professional care. When a symptom of which drugs can cure is advertised and it's commensurate with a symptom of a particular person, they opt to purchase those drugs either than see their physician. X_9 and X_{10} are rate of advertisement of radio and television respectively. This is presented in model two. It is expected that they will be positive relationship between rate of advertisement on the various medium of advertisements and self-medication. More importantly, adverts in general do not encourage people to consult their doctors if they use them.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF RESULTS

4.0 Introduction

This chapter used descriptive statistics to analyze the various form of information that influence people to engage in self-medication and also to know the type of illness that often propel people to engage in self medication as well as why there are health insurance but still people often engage in self medication without going to hospital. Logistic regression estimates are used in discussion the effect of advertisement on self-medication among the sample population. Also, estimates from the logistic regression are used for the analysis of the demographic and socio-economic characteristics of the respondents on self-medication. Logistic regression is use on the various forms of advertisement on self-medication as well as the demographic and socio-economic characteristics.

4.1 Descriptive analysis

Table 4.1: Descriptive statistics of variables used in the empirical model

Variable	Percent (%)
Self medication	87
Female	48
Insurance	70
Basic education	20
Senior high school	29

Tertiary education	15
Advertisement	97
Radio	58
Television	35

Source; field survey, 2012

From the Table above, about 48% of respondents in the sample population were females and the remaining 52% as males. Also 70% of the sampled respondents are insured while 30% are uninsured. On academic qualification, people with basic education, senior high education and tertiary education are 20%, 29% and 15% of the sample population respectively. 36% of the sampled respondents are people without any formal education. 97% of the sampled respondents rely on advertisement for information on self-medication. About 58% of the respondents rely on radio for advertisement on drugs while television constitute about 35% and the remaining 7% depends on billboard and other mediums for their information.

Table 4.2: Shows demographic characteristics of respondents

Variable	Mean value	Standard deviation	Minimum value	Maximum value
Age (years)	33.363	10.7212	18	70
Income (monthly)	284.8175	165.1679	20	900

Source; field survey, 2012

Table 4.2 above summarizes the demographic and socio-economic characteristics of the sampled respondents in the study area as well as factors that influence self-medication. The age structure of the sampled respondents ranged from 18 to 70 years with the mean age of 33 years. The minimum and the maximum monthly income of the sample population were ¢20.00 and ¢900.00 respectively with the average income of ¢285.00.

Table 4.3: Factors that influences people to engage in self-medication

Information	Freq.	Percent	Cum.
Chemist	246	61.50	61.5
Books	52	13.00	74.50
Past prescription	95	23.75	98.25
Others	7	1.75	100.00
Total	400	100	

Source; field survey, 2012

The result in Table 4.3 shows sources of information that health care consumer uses apart from advertisements to engage in self medication. About 62% of respondent get their information from chemists, 13% of the respondent get their information from books, about 24% of the respondent uses past prescription of their earlier attendance to physician which they assume to have the same symptoms. About 2% of the respondents depends on others information such as friends to engage in self medication especially people in the adolescent stage. This means that various drugs sale persons are major source of information that provides information for people that engage in self medication. This is due to the fact that chemical drugs stores are many in study area and can be attributed to this.

Table 4.4: Types of illness that compels respondents to engage in self-medication

Illness	Frequency	Percentage	Cum.
Pains	138	40	40.12
Malaria	130	38	77.91
Fluid	72	21	98.84
Others	4	1.2	100
Total	344	100	

Source; field survey, 2012

Table 4.4 above summarizes the type of illness that respondents perceived to be the cause that compels them to engage in self medication. About 40% of respondents perceive that they were in pain, that is, stomach pains, headache, menstral pains, and joints pain. 38% of respondents perceive that malaria is the cause of them engaging in self medication. About 21% of the respondents' perceived that fluids (catarrh, coughing and cold) were the cause of them engaging self medication. While 15% of the respondents think other sickness such as piles, influences them to engage in self medication. The reason can be due to the fact mosquitoes are prevalent in the study which causes these fever and pains as well as the severe sun that is experienced in area in some period of the season.

Table 4.5: Reasons for engaging in self medication whiles with health insurance

Reasons	Freq.	Percent	Cum.
Lack of time	86	35	35.39
Long waiting	115	47	82.72
Others	42	17	100

Source; field survey, 2012

Table 4.5 above summarizes respondents' reasons for engaging in self-medication while having valid health insurance cards. About 35% of the respondents attributed to lack of time on their side to attend hospital. 47% of the respondents attributed it to long waiting time. While about 17% of the respondent attributed it to others reason for engaging in self-medication. Some of these reasons stated by the respondents as being the factors preventing them from attending hospital includes, disrespect from nurses from health insurance accredited facilities, complains from nurses that they like coming to hospital frequently. Some also perceived that their sicknesses are minimal and it does not require them to attend hospital.

4.2 Quantitative analysis

Let Y_i (Binary variable) represents the observed response of each sample population (ith observation). Therefore, $Y_i = 1$ for self-medication and $Y_i = 0$ for no self-medication. It follows that:

$Y_i = g(X_i)$

Where g is the functional form of the model. These show the relationship between self-medication and others factors affecting self-medication. This is specified as shown in Stock and Watson (2007). This is shown below

$$Y_i = \ln\frac{p}{1-p} = \beta_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \varepsilon_i$$

The result is presented as follows in the table below;

Table 4.6: Dependant variable: self-medication

Explanatory Variable	Coefficient	Standard Error	P-Value
Constant	-1.099632	0.8495697	0.196

Age	0.059528	0.0207152	0.004
Income	-0.0017785	0.0011814	0.132
Gender			
Male	-	-	-
Female	0.1383108	0.3164185	0.662
Insurance	0.1507027	0.3376094	0.655
Educational Level			
Uneducated	-	-	-
Basic Education	0.5867698	0.4683413	0.210
Senior High Education	0.1184141	0.3765283	0.753
Tertiary Education	0.5694036	0.5516176	0.302
Advertisement	1.258906	0.6292521	0.045

Source; field survey, 2012

Likelihood Ratio (LR Statistic) = 17.71

Number of Observations = 400

Probability > chi2 = 0.0235

Since the overall regression measures in term of likelihood ratio chi-square (17.17) are significant, we can conclude that the result of the regression is significant.

4.2.0 Interpretation of Regression Coefficients

The coefficients of female, educational level and insurance have positive impact on people's likelihood to engage in self medication. The coefficients of female, educational level, income and insurance are not significant at 5% error level. Most of the signs are not different from a

priori expectation though insignificant at 5% error level. Income level has negative impact on the likelihood of people engaging in self medication. Also, uneducated and males are the control group representing male who are uneducated. Only advertisement and age are significant at 5% error. The coefficient of insurance is insignificant due to the following reasons; lack of time for people to attend hospital, long waiting time, harassments and intimidation by Nurses in the various health centers. This is presented in Table 4.5.

The positive sign of age on self medication indicates the probability of self medication for changes in the ages of people. If age increases, there is probability of self medication to increase, suggesting that there is positive relationship between age and likelihood of self medication. As age of people increases, they tend to engage in self medication. Age is significant at 5% error level. This implies that people's age does have impact on people likelihood to engage in self medication. This is consistence with expectation. These is also consistence with earlier finding by Michael *et al.,* (2004), which they found that older people are likely to increase the number of prescriptions and non prescription medication consumed. This implies that, as the age of as person increases, in order to maintain good health, they have to consume more healthcare. It can be inferred from the result that age is positively related to likelihood of a people engaging in self medication.

The negative sign of income on the self medication measures the impact of income on the likelihood of self medication. If the level of people's income increases, the likelihood that people will indulge self medication would decrease, suggesting that there is negative relationship between income and self medication. As levels of income of people increases, they tend to reduce the probability of them indulgencing in self medication. Income is insignificant at 5% error level. This implies that people income level does not have impact on people likelihood to

engage in self medication. This is inconsistence with expectation but consistence with the model by Chang and Trivedi (2003).Chang and Trivedi (2003) argue that professional care is a normal good and self-medication is an inferior good. Therefore, the incidence of self-medication should fall as income increases; at least when income rises above a certain threshold beyond which individuals would begin to consult professional medical care. Income levels were squared to find whether there is threshold of income beyond which people will consult professional care but it was insignificant. This implies that threshold of income stated by Trividi and Chang (2003) that when income rises above would propel people to consult professional care does not apply to this study. The negative sign of income implies that the rich are less likely to engage in self medication as compared to the poor, because the rich can afford professional care but since coefficient is insignificant, it implies that the difference is not statistical significant.

The positive sign of advertisement on the self medication measures the effects of advertisements on probability of people engaging in self medication. If advertisement increases, the probability of people engaging in self medication will also increase. There is a positive relationship between advertisement and probability of people engaging in self medication. As advertisement increases, there is a probability that people will engage in self medication. Advertisement is significant at 5% error level. These imply that advertisements have impact on peoples' likelihood to engage in self medication. It is consistence with expectation. This means that H_0 hypothesis is rejected and instead H_1 accepted at 5% error level. It therefore confirms that advertisements have impact on people likelihood to engage in self medication. Advertisement is a major determinant of self medication. People most often are willing to get expert information from various advertisements in the media to engage in self medication.

4.3 Using the various medium of advertisements

$Y_i = \ln\frac{p}{1-p} = \beta_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \varepsilon_i$ is presented as follows in the table below;

Table 4.7: Dependant variable: self-medication

Explanatory Variable	Coefficient	Standard Error	P-Value
Constant	-0.9630676	0.09054562	0.287
Age	0.0508955	0.0205414	0.013
Income	-0.0009773	0.0012471	0.433
Gender			
Male	-	-	-
Female	0.2445404	0.3311946	0.460
Insurances	0.2134067	0.3546303	0.547
Educational Level			
Uneducated	-	-	-
Basic Education	0.9144246	0.5221639	0.080
Senior High Education	0.2470689	0.3969656	0.534
Tertiary Education	0.8326764	0.5898244	0.158
Medium of advertisement			
Radio	1.460395	0.5517054	0.008
Television	0.5171334	0.5390413	0.337

Source; field survey, 2012

Likelihood Ratio (LR Statistic) = 23.02

Number of Observations = 387

Probability > chi2 = 0.0062

4.3.0 Interpretation of coefficients of various medium of advertisements

The coefficients of female, educational level, television and insurance have the positive impact on people's likelihood to engage in self medication. Income level has negative impact on people likelihood of engaging in self medication. The signs are not different from a priori expectations though insignificant at 5% error level.

Again, age is significant at 5% error level. These imply that as age increases, there is likelihood that people will engage in self medication. This also means that older people engage in self medication than young ones because they need to improve health by buying (consuming) more drugs. Age has important bearing on the likelihood of people engaging in self medication.

Radio advertisements have much impact on people likelihood to engage in self medication. There is positive relationship between radio advertisement and likelihood of people engaging in self medication. As advertisement on radio increases, the probability of people engaging in self medication increases. Radio advertisement is significant at 5% error level. This implies that, radio advertisement have impact on people likelihood to engage in self medication. Radio advertisement is likely to influence the population than television and other mediums of advertisements. Television advertisement has the same impact as billboard. This could be due to the fact that most of the people are farmers and does not get in contact frequently with television as compared to radio since radio is more portable than television. This can be contributed to the fact that people can easily carry radio to their various work places as compare to television.

CHAPTER FIVE

SUMMARY OF FINDINGS AND POLICY RECOMMENDATION

5.0 Introduction

The study was carried out mainly to find out whether advertisement affects the likelihood for people to engage in self-medication. This chapter therefore reviews the major findings from the data analysis and the overall conclusion of the study after which recommendations are made.

5.1 Summary of major findings

The study reveals that 87% of the sampled population in the study areas engages in self-medication. This is consistent with earlier literature. It must be noted that WHO encourages the use of responsible self-medication practices so as to reduce the burden on facilities and health care personnel in the developing economies like Ghana.

Also, the study shows that income level, insurance, sex of the respondent and level of education does not have impact on the likelihood of people engaging in self-medication. Though, income is insignificant in influencing people to engage in self-medication. It predicts a negative relation between income and likelihood for people to engage in self-medication which is consistent with theory. Insurance also predict positive relations between the likelihood for people to engage in self-medication and people having insurances.

The study reveals that information from chemist is the major source of information for people that engage in self-medication. About 62% admitted that apart from advertisement they always get their information from chemist and 24% admitted that they use past prescription.

The study also found that advertisement has significant effects on people in influencing them to engage in self-medication. About 97% of the respondents said that advertisement influences them most. The most important medium of advertisement that influences sampled population is radio. About 58% of the respondent said radio influences them. While 35% says television influences them and 7% says others medium of advertisement such billboard. The impact of advertisement on self-medication is statistically significant at 5% error level. Radio being a medium of advertisement is statistically significant at 5% error level. This implies that radio advertisement have impact on the likelihood of people engaging in self-medication.

The study also found that, the sickness that respondent perceives to be reason for them engaging in self-medication is pains (stomach pains, headache, join pains, body pain etc.). About 40% of respondents said that it was pains that make them to purchase drugs. While 38% of the respondents perceive that malaria was the cause of them engaging in self-medication. 22% of the respondents perceived others sickness to be the cause of them engaging in self-medication.

The study also found that age is very important factor that influences people to engage in self-medication. The relationship between age and likelihood for people to engage in self-medication is positive, which implies that as age increases, there is the likelihood that self-medication will increase. Age is statistically at 5% error level.

5.2 Conclusion

It can be concluded from the finding that majority of Ghanaians engage in self-medication which show that, majority of the population takes their health in their own hands and consumes drugs without them going to hospital. The set objectives in chapter one are fully achieved and alternative hypothesis being confirmed that an advertisement is the major factor influencing self-medication. In addition, information from chemist also serves as a source of information that influences people to engage in self-medication. The common perceived sickness that influencing peoples to engage in self-medication are malaria and pains.

5.3 Recommendation

The study recommends that national drug policy adopted in 2004 should be implemented fully so as to give right information to health care consumers that engage in self medication. The ministry of health should implement the national drug policy to the latter so that prescription drugs may not be sold at the public places such as lorry stations.

The study recommends that, the health authority should embark on health education on drug use on the various radio stations in the country. Because radio advertisement is the most important medium that influences people to engage in self medication. This medium of advertisement can be used to inform the general public as to which drugs they can purchase without prescription (over-the-counter drugs) and the ones that should be prescribed (prescription drugs) by physician.

The study again recommends that checks must be put on pharmaceutical companies so that their advertisements carries the right information that will make people to engage in responsible self care. In addition, licensed chemical stores should be made to put qualified peoples in charge in

order to avoid people being given wrong doses.The health authority should organize seminars and refresher courses to licensed chemical owners to increase their knowledge in drug use and administration. Adverts should encourage customers to ask their physician before they will take the drug. Adverts should encourage customers to ask their physician before they take that drug.

The study also recommends that population should be sensitized so that they may not see some sicknesses as being minor so that they can seek for early treatment to avoid over expenditure and unnecessary death.

Lastly, the study recommends that National Health Insurance Authority, Ministry of Health and Ghana Health Service should ensure that there is effectiveness of care that is provided under insurance so that people do not engage in self medication of prescription drugs. The health authority should put in place measure to ensure that long waiting time is reduce in the various health care centers that would encourage more people to seek for professional care. Also nurses should be sensitize not to criticize patients attending hospital frequently and rather show them hospitality that would encourage them to attend hospital when the need arise.

5.4 Limitations of the Study

The study did not encounter many limitations but due to financial and time constraints, the study could not use large sample sizes. These only serve as the limitation of the study. The large sample sizes could have affected the unbiaseness of the results and precision of the estimated coefficients. Variables that were insignificant could become significant if the sample sizes were increased. Another limitation of the work is that, it does not contain policy variable.

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APPENDEX 1

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF ARTS AND SOCIAL SCIENCE

DEPARTMENT OF ECONOMICS

Effects of advertisement on self medication; a case study of Ejura municipality

This study is conducted in partial fulfilment of the requirement of the award of a Master of Arts degree in economics. All information received would be used solely for academic purposes and treated with strict confidentiality.

Please tick the appropriate answer.

1 Age: [ ]

2 sex: male [ ] female [ ]

3 Monthly income level: [ ]

4 Education level: basic [ ] senior high [ ] tertiary [ ] uneducated [ ]

5 Have you heard or listened (seen) to any advertisement on drugs? a) Yes [ ] b) no [ ]

6 Which of the following is the medium through which the advertisement was made?

a) Radio [ ]
b) Television[ ]
c) Bill board[ ]
d) 7 Do you engage in self-medication? Yes [ ] no [ ]

8 what are the other sources of information on self medication?

a) Information from chemist [ ]
b) Books[ ]
c) Past prescription[ ]
d) Others specify…….

9 what illnesses normally influence you to engage in self medication: a) Pains [ ] b) Malaria [ ] c) Fluid [ ] others: specify……

10 Are you insured? Yes [ ] no [ ]

11 If yes why do you engage in self medication?

a) Lack of time to attend hospital
b) Long waiting
c) Others: specify……..

THANK YOU

APPENDEX 2: shows results of regression for 400 observations.

```
Logistic regression                                     Number of obs   =        400
                                                        LR chi2(8)      =      17.71
                                                        Prob> chi2      =     0.0235
Log likelihood = -149.46002                             Pseudo R2       =     0.0559

------------------------------------------------------------------------------
    selfmedi |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         age |    .059528   .0207152     2.87   0.004     .0189269    .1001291
      income |  -.0017785   .0011814    -1.51   0.132     -.004094     .000537
      female |   .1383108   .3164185     0.44   0.662    -.4818581    .7584796
       basic |   .5867698   .4683413     1.25   0.210    -.3311622    1.504702
   secondary |   .1184141   .3765283     0.31   0.753    -.6195679    .8563961
    tertiary |   .5694036   .5516176     1.03   0.302    -.5117469    1.650554
      advert |   1.258906   .6292521     2.00   0.045     .0255947    2.492218
     insured |   .1507027   .3376094     0.45   0.655    -.5109996    .8124049
       _cons |  -1.099632   .8495697    -1.29   0.196    -2.764758    .5654939
------------------------------------------------------------------------------
```

```
Logistic regression                                     Number of obs   =        387
                                                        LR chi2(9)      =      23.02
                                                        Prob> chi2      =     0.0062
Log likelihood = -135.51351                             Pseudo R2       =     0.0783

------------------------------------------------------------------------------
    selfmedi |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         age |   .0508955   .0205414     2.48   0.013     .0106352    .0911559
      income |  -.0009773   .0012471    -0.78   0.433    -.0034215    .0014669
      female |   .2445404   .3311946     0.74   0.460     -.404589    .8936699
       basic |   .9144246   .5221639     1.75   0.080    -.1089978    1.937847
   secondary |   .2470689   .3969656     0.62   0.534    -.5309693    1.025107
    tertiary |   .8326764   .5898244     1.41   0.158    -.3233582    1.988711
       radio |   1.460395   .5517054     2.65   0.008     .3790722    2.541718
  television |   .5171334   .5390413     0.96   0.337    -.5393682    1.573635
     insured |   .2134067   .3546303     0.60   0.547    -.4816559    .9084692
       _cons |  -.9630676   .9054562    -1.06   0.287    -2.737729    .8115939
------------------------------------------------------------------------------
```