

**A PROSPECTIVE STUDY ON SELF-MEDICATION PRACTICES AND
CONSUMERS DRUG KNOWLEDGE IN ADDIS ABABA**

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By

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Dedicated to my Parents and Family

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Abbreviations and Acronyms

AA	Addis Ababa
AB	Antibiotics/antimicrobials
ADR	Adverse drug reaction
AESGP	Association of European self-medication industry
AN	Analgesic/antipyretic
ASA	Acetyl salicylic acid
BMI	Body mass index
BP	Blood pressure
CSA	Central Statistics Authority
DHS	Demographic and health survey
EC	Ethiopian calendar
DRO	Drug retail outlet
DAP	Drug action program
EDM	Essential drugs and medicines
FIP	International pharmaceutical federation
GI	Gastrointestinal
HCP	Health care provider
HIV	Human immune deficiency virus
KAP	Knowledge, attitude, practice
MOH	Ministry of health
NGO	Non-governmental organization
NSAIDs	Non-steroidal anti-inflammatory drugs
OGA	Other governmental organizations
OTC	Over-the-counter
PHC	Primary health care
RTI	Respiratory Tract Infection
STDs	Sexually Transmitted Diseases
UK	United Kingdom
USD	United States Dollar
VT	Vitamins
WHO	World Health Organization
WSMI	World self-medication industry

ABSTRACT

Background: Health and disease exist in a continuum. Self-care is as old as illness if not as humans. Self-care is a lay behavioural response of individuals to promote or restore their health. One form of self-care is self-medication. Drugs are central to self-medication. Although there are arguments for and against self-medication, its contribution to promote health, and prevent and treat diseases is beyond doubt. Self-medication is the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms of illnesses. Socio-demographic and socio-economic variables affect self-medication. In this study, an attempt has been made to assess self-medication practices with modern drugs and consumers drug knowledge in Addis Ababa.

Methods: A multi-stage stratified sampling of drug retail outlets and drug consumers (actual drug users and messengers) was designed and used. Structured questionnaires to assess prospective self-medication practices and consumers drug knowledge were employed. The data was analyzed using Epi Info Software.

Results and Discussion: The respondents represented all socio-demographic characteristics such as age and gender (the proportion of males was twice that of females); education levels and occupation; religion (the majority being Orthodox Christians) as well as pregnant and breast-feeding women. The most frequently reported illnesses that prompted drug consumers for self-medication were found to be gastrointestinal (GI) diseases, headache/fever and respiratory tract infections (RTIs). More than 30% of illnesses/symptoms of illnesses were of less than 24 hours duration and more than 40% between one and seven days. The most common reasons for self-diagnosis and self-medication were non-seriousness of the diseases and prior experience about the drugs. More than 50% of the drug consumers requested drugs

by specifically mentioning the names of the drugs and one-fifth of them by telling their illnesses/symptoms of illnesses. The most frequently requested category of drugs were analgesics/antipyretics (more than 30%), antimicrobials (more than 25%) and gastrointestinal drugs (more than 17%). Assessment of drug knowledge revealed that drug consumers know not only the names of OTC drugs but also other potent drugs, indicating widespread use of the latter. For example, among the top fifteen frequently recalled drugs five were antimicrobials. Drug consumers had also some dosage form preferences, the highest being injections and tablets for messengers and for actual drug users, respectively. Multivariate analysis showed that there is association between illness/symptoms of illness with the duration of illness and source of advice/information for self-medication (p value less than 0.05). Strong association (p value = 0.0000) was observed between the source of advice/information and the frequently requested category of drugs, some socio-demographic variables with sources of advice/information, knowledge of drugs, and the frequently requested category of drugs.

Conclusion: Self-medication is widely practiced by all categories of respondents for a wide range of illnesses/symptoms of illnesses. More than 100 different types of drugs were used for self-medication. Although there is some apparent consumers drug knowledge, it is suggested that the public has to be educated on the type of illnesses to be self-diagnosed and the type of drugs to be self-medicated. It is only then that responsible self-medication prevails to promote health and prevent/ treat illnesses.

1. INTRODUCTION

1.1. Health, disease and drug Use

1.1.1. Health

Health is a difficult concept to define. There are two opposing models in the concept of health: a negative and a positive model of health. The negative model sees health as the absence of the constraints of illness or the absence of disease. The widely used positive model of health is that of the WHO which defines health as: *state of complete physical, mental, and social well-being and not merely the absence of diseases or infirmity [1]*.

As with all human actions, the decisions regarding health behaviour are influenced in part by external stimuli e.g. a pharmacist advising a patient and also by internal states such as those thoughts and feelings and beliefs. When confronted with a health problem and a rational drug therapy solution designed by an expert health professional, it is not uncommon for patients to choose not to accept the advice. Patients choose to modify their treatment plan to meet their needs, as they perceive them, within their own conceptual framework based upon their experience. [2]. Thus, the patient's health outcomes may ultimately be more dependent upon what the patient feels, thinks, believes, decides and does than on accurate diagnosis, rational drug therapy, appropriate drug selection, correct dispensing, and accurate and understandable presentation of medication information.

Health is influenced by the physical and social environment, economic conditions, heredity and health services [3] and health in turn influences learning [4]. The piecemeal approach to focus on curative medicine will only lead to a high rate of episodic consultation and self-medication without empowering the young people with the skills of self-care and self-help, and positive health behaviour [4,5].

Promoting the health of populations involves the actions of participants at different levels of society. Health was considered preserved or restored by professional care either by preventing specific diseases with immunization or treating diseases with chemical agents or removal of diseased parts of the body. But health cannot be reduced to experts attenuating a limited array of potential disease agents. The crucial role of the strength and vitality of the host is again gaining recognition. Thus, it is important to focus on self-care behaviour as a factor among many that are essential to health protection [3-5]. For example, many of the health problems encountered by school children in Hong Kong are not reported in routine health data as they seek help in primary health care or opt for self-medication [4].

There are a number of reasons that are useful in understanding patients' choices about their health behaviours. According to Dolinsky [2] some of these are:

- Availability of drugs: Well-publicized events tend to be believed more than less publicized. A patient may choose to buy a highly advertised over-the-counter (OTC) product rather than a house brand.
- Selective perception: People tend to believe what matches their existing beliefs.

- Concrete versus abstract information: A real incident will be believed more than abstract statistics, for example, a patient may be more likely to change a dietary habit if it helped a family member than a given outcome of a research study.
- Two incidents occurring close in time and place tend to be seen as causal, even though they may have nothing to do with each other.
- People tend to be reluctant to revise their beliefs, even given new data, and would rather discount the new information rather than discount their beliefs.
- Very few instances of an occurrence are needed for people to form a new belief if it has a strong impact upon them.
- People believe something is more likely to happen if they want it to happen.
- A decision resulting in success is more likely to be considered to be due to the knowledge and wisdom of the decision, resulting in loss is likely to be blamed upon another.

1.1.2 Disease

Patients understand their illness within their own conceptual framework, which includes their own beliefs, thoughts and feelings. They process that information and then make their own decision and act. Disease and illness are different. Illness happens to humans i.e. illness is a subjective state of the person who feels aware of not being well. Disease happens to organs i.e. disease is a physiological/psychological dysfunction. Disease/injury is resulting from an unfavourable interaction of agent, host, and environment. Most simply stated, an agent is a factor whose presence (e.g. Tubercle bacilli) or absence (e.g. vitamin B deficiency) causes disease. Host factors refer to those physical and psychological attributes of a person that predisposes or protects from disease (e.g. advanced age, antibody levels) [6].

1.1.3. Drug use

Humans experience symptoms, label them, do something about the symptoms, or do not, consider themselves either to be ill or not to be ill, do or do not seek out and accept treatment, etc. All of these have influence on patients' future decision regarding medication taking and health related behaviours [7].

This is important to know because pharmacists are talking to patients about the drugs they dispense. The dialogue that occurs between the patient and health care provider often is telling and listening. Unfortunately, there is not a one-to-one correspondence between telling and knowing and knowing and doing. Patients take information and process it with their own cognitive framework, which is based upon their interpretation of their own experiences. The meaning that the patient attaches to the information may be quite different from the meaning that the pharmacist attaches to the information [2,7,8].

An understanding of the patient's feelings and thinking process will enable the pharmacist to move beyond information and product dispensing to taking on the additional role of "helping-professional." Understanding the drug-taking process from the patient's point of view can help the pharmacist help the patient to make better decisions about their medication taking and related health behaviours [2].

Thus, in dispensing medications, counselling patients and monitoring drug therapy, the pharmacist needs to understand not only the disease, but also the illness, i.e. patients perception and interpretation of their diseases [2,8].

A variety of terms are used including drug, medication, and medicine to refer to substances that are biologically and/or psychologically active. Often we are concerned with their use in their, mitigation, prevention, diagnosis, treatment, or cure of diseases. It is being recognized that drugs are also used for non-medical reasons. Therefore, drug use is defined as focusing on the processes, attitudes, and beliefs related to the acquisitions, consumption and response to drug substances [9].

Although drugs are mainly used to treat or cure diseases, it is known that they fulfil a wide variety of other functions in society. By definition, a drug is a chemical that is intended to affect the structure and function of some physiological component of the body [10]. It may not be there to specifically cure or even treat abnormal physiological condition. Uses of drugs are divided into: Therapeutic, social, economic, political and religious categories. Therapeutic aspect includes medical, diagnostic and research uses. Social uses include recreational, performance enhancement, and social control. The Economic, political and religious uses are all considered as non-medical functions of drugs in a given society.

Drug use is affected by the socio-demographic characteristics of drug consumers. For example, women use more curative drug use than men [11]. On the average 1.7 drugs are taken by women as compared 1.0 by men. Curative drug use rises sharply with age and preventive drug use also rises until age 75+, after which it drops. There is no overall relationship between drug use and education, and drug use and ethnicity. Drug use depends mainly on morbidity and age followed by attitudes about life and health, then on stress and least on social roles and ones ability to take other health actions besides drugs. Overall, morbidity is the strongest predictor of drug use. It differs sharply by sex. Evidence suggests

that women have more symptoms from acute and chronic conditions than men do, although their conditions are probably less life threatening than men's. Women's more frequent symptoms lead to more drug use [7,8,11].

Factors that have contributed to increased demand for medication include: perceptions of illness and medicine; the impact of advertising and the media; and increasing reliance on commercial products or self-care. Medicine obviates the need to devote time and energy to healing activities or to the 'down time' necessitated by ill health. In this way medicines join the ranks of other timesaving convenient products to meet the demands of hectic lives [7,12].

Research among families with small children confirms that parents tend to rely on medicines to take care of minor health problems and discomforts, or to ward off potentially greater ills, in an effort to keep themselves going and the household running. Such efforts "buy time" by postponing symptoms until they can be given closer attention during off-work hours.

To the extent possible, illness is made to accommodate patient's schedule, rather than requiring caretakers to adjust their schedule to accommodate illness. Impatience, coupled with faith in technology has led the public to expect miraculous transformations from illness to health after medical intervention. This expectation creates demand for fast relief and may in turn cause individuals to consume greater amount and varieties of medications when a first dose does not provide instantaneous relief. The requirement of a job may also cause individuals to take medicines prophylactically in anticipation that symptoms might arise during the workday [7,12].

Three features of health transition, which affect medicine use, are:

- Commodification of health;
- Increased awareness of morbidity of less serious illness; and
- Increases in medicine use among an aging population with chronic or self-limiting ailments.

One result of increased drug use is a change in the concept of what it means to be healthy or ill, along with a reduction in the threshold of tolerance for discomfort. The wide spread/availability of a greater variety of medicines leads people to believe that more of their discomforts, infirmities and impairments are curable. This phenomenon described as a drop in “frustration tolerance,” which leads to expectations of “drug solution to every discomfort” or “a pill for every ill” [12,13].

Lowered thresholds of tolerance not only result in greater overall use of existing medications, but also proliferation of new pharmaceutical products which both respond to consumer demands and generate new dissatisfactions. The cycle continues: an increased availability of products spurs additional changes in thresholds of discomfort, resulting in altered definition of what is “normal” or “natural” and driving the need for new, improved products. As symptoms and behaviours become masked by the greater use of medications new criteria are established by which health illness, and acceptable behaviour are evaluated [12].

1.2 Self-care

Self-care behaviour is not new, but rather the oldest and most widely used of all forms of behaviour that affect the health of individuals. However, the use of the term in the health field

is new. The contemporary self-care is a response of developments and attitudes regarding the role of individuals that occurred over the past hundred years or so [14]. The rapid changes in the organization, content and delivery of formal health services also suggest another reason for maintaining the term self-care and developing associated theory and concepts.

In the 1950s and 1960s, health was centered on medicines, doctors and health problems. Patients were passively waiting for advice and prescriptions. In the 1970s it focused on risk factors in our daily life. In the 1980s people started to adopt an active approach to health. In the 1990s many consumers had the knowledge to take an active role in managing their own illness and started combining enjoyment with long-term well-being. They started having a balanced view of health, which generated more interest on prevention and self-care options. In the future, even more information will become available to help the consumer in matters concerning self-care and self-medication medicines [5].

1.2.1 Self-care Concepts

The definition of self-care by individuals could be very extensive or narrow, theoretical or practical. It has been defined as substitute, supplementary or additive to professional care, or as a discrete component in the health care delivery system. Some define it as a source of rather than a form of lay medicine. Others define it by the role it plays. However, all definitions agree on the main components/concepts of self-care: diagnosis, self-medication, self-treatment and/or patient participation in professional care [14,16]. The bulk of all care in illness is self-care. Self-care is generally 'softer' and low-tech compared to professional care, often involving promotion of health or treatment of illness [14]. As there are many authors and professions concerned with health and self-care, there are also different definitions to

self-care. Self-care is:

- A range of behaviours exhibited by individuals to promote or restore their health;
- Lay behavioural responses to illness in contrast to professional care;
- Actions taken by lay persons in their own health interest without formal medical supervision and others included behaviours performed under the directives of the care providers [[14].

The consensus, which has emerged in most definitions of self-care, is based on a broad concept incorporating notions of autonomy and influence. In these concepts the meaning of behaviour shifts from that of health behaviour and illness behaviour where people seek care or utilize screening or curative professional services to something they do themselves. Self-care is active; it is participatory rather than passive receiving of care or directives given by professionals.

Therefore, the definition of Self-care is what people do for themselves to establish and maintain health, prevent and deal with illness. These activities are derived from knowledge and skills from the pool of both professional and lay experience. They are undertaken by lay people on their own behalf, separately or in participative collaboration with the professional.

Self-care is a broad concept encompassing:

- Hygiene (general and professional);
- Nutrition (type and quality of food eaten);
- Life-style (sporting activities, leisure, etc);
- Environmental factors (living conditions, social habits, etc);
- Socio-economic factors (income level, cultural beliefs, etc); and
- Self-medication [12, 14-22].

1.2.2 The role of self-care

Self-care and self-medication will increase in the future for a number of factors. These factors include: socio-economic factors; lifestyle; ready and increased access to drugs and self-care products; increased and prohibitive costs of health services; change in the pattern of diseases; the increased potential to manage certain illness through self-care; the increased knowledge and awareness about health; and diseases; public health and environmental factors; and demographic and epidemiological situations [12, 21,23]. Survey and diary studies of medicine taking behaviour indicated that 70% to 80% of illness is managed by self-care without the intervention of the physician [24]. However, there are conflicting ideas as to the contribution of self-care and self-medication. For example, the medical community has characterized self-care as questionable if not dangerous and others stand against this argument and talk of its contribution to primary health care (PHC) [12,22-29].

To come up with such a controversy, pharmaceutical care is growing in importance with the challenges of self-care. Pharmacists' involvement in self-care means greater responsibility towards their customers and increased need for accountability [16]. In addition, their category of health care providers is easily accessible with no or minimal cost to the customer, has wider contact to the community and in general trustworthy. But what remain are the readiness of those professionals to accept that responsibility in terms of the knowledge and skills required, and willingness and empathy to provide the service. It is only then that we can exploit the untapped potential of the health service in all aspects of health service delivery for self-care and self-medication.

Bartlome and co-workers [30] classified self-care and illness response behaviour into six

categories:

- Waiting to see what would happen,
- Purchasing or taking a non-prescription medication,
- Taking a prescription medication,
- Taking both a prescription and non-prescription medication,
- Contacting a physician, and
- Going to a hospital. These six variables were classified into three intervention constructs of no intervention (waiting), informal intervention (self-medication, 56% of the total respondents) and formal intervention (contacting a health care professional).

According to Carole and Kimberlin [31] the critical elements necessary for appropriate self-care are:

- Patients must perceive themselves as susceptible to negative health outcomes if they do not behave in a certain way;
- Patients must perceive those health outcomes as serious;
- Patients must perceive treatments as being effective;
- Patients must perceive the benefits of treatment as outweighing the costs. The costs may be monetary, they may be enduring side-effects of medication, they may be psychosocial costs and so on; and
- Patients must have cues to action [31].

It has been argued that self-care of common illnesses constitute self-reliance and a positive contribution to primary health care. Greater knowledge about and access to medications

reduce dependence on health care providers [12]. Self-care, including self-medication, has been a feature of health care for many years [32].

1.3 Self-Medication

Self-medication constitutes one of the most modern expressions of the always present need of men and women for care of their health. However, in contrast to other expressions of self-care, self-medication by considerable proportion of the population and some healthcare providers attached to negative connotations. Contrary to this vision, the WHO and others mark the existence of a valid role of self-medication [12,25,33-35]. Illness episodes are treated by self-medication. Although it is popular preference, little is known about the appropriateness of self-medication. Therefore, tools to evaluate the appropriateness of self-medication still need to be developed [12,36].

In 1995 the WHO Expert Committee on National Drug policies stated: “Self-medications is widely practiced in both developed and developing countries. Medications may be approved as being safe for self-medication by the national drug regulatory authority. Such medicines are normally used for the prevention or treatment of minor ailments or symptoms, which do not justify medical consultation. In some chronic or recurring illnesses, after initial diagnosis and prescription, self-medication is possible with the doctor retaining an advisory role.” [37].

1.3.1 Self-medication concepts

There are some differences in the definitions of self-medication; for example, WHO consultative group of experts defined self-medication as the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms [8]. Self-medication is one element

of self-care [12,25,33-36]. Self-medication is also defined as obtaining and consuming one or more of drug(s) without the advice of a physician either for diagnosis, prescription or surveillance of the treatment [34,35].

A self-medication drug is a drug (the grantees for which are provided by marketing authorization approval and dispensation and advice by a pharmacist) specifically suitable for use without any physician's prescription [38]. A pre-requisite of any medicinal product being made available on the market to treat an ailment is the safety, efficacy and quality of the product [38,39].

1.3.2. Determinants of self-medication

An individual decision to use available drugs to alleviate discomfort, prevent illness, and enhance health is influenced by myriad factors. These factors range from cultural sensitivities and preferences for specific forms of medication to economic considerations, which influence medicine choice in the market place; from political issues, which regulate medicine availability to marketing campaigns, which creates as well as respond to consumer demands [12].

When people are unwell they cannot be sure whether their condition warrants a prescription or a non-prescription medicine, but a considerable number of factors may influence their decision to go to the health care provider. According to the Association of European Self-medication Industry (AESGP) these are:

- The perceived seriousness of the symptoms and the extent to which they may have occurred before;

- The cost, if any, of consulting a health care provider;
- The time needed to go to the health care provider;
- Any other costs connected with going to the health care provider such as loss of earnings;
and
- The known or estimated cost of purchasing the prescribed medicine and how that amount compares with the estimated price of a non-prescribed medicine [41].

Quantitative studies indicate that there is correlation between increased self-medication activity and demographic factors such as morbidity, income, education (schooling), gender, age and absence of periodic consultation. These have been found to be significant statistical factors in self-medication [38,42].

1.3.3. Sources of information for self-medication

Studies of medicine taking behaviour indicate that 70% to 95% of all illnesses are managed by self-care, without the intervention of a doctor. Quantitative studies of medication taking behaviour indicate that self-medication is a popular preference as "first response to illness". These studies document the use of both prescription and non-prescription drugs for self-medication [12,30,35,43-46].

During an illness episode, individuals commonly seek information and advice from a lay referral or therapy management group. This group affects self-diagnosis and treatment by contributing knowledge gained through experience, and by sharing of medications. Maintaining wide and active network becomes especially important for low income and uninsured individuals whose access to formal medical care is limited by financial constraints. In these cases, word of mouth information about effective self-care measures or about sources

of free or reduced rate of professional care enables uninsured individuals to respond to illnesses [12]. Family/parents, friends, neighbours, old prescription given in previous consultation and previous experience used as influential sources of information for self-medication [12,43]. Sources of self-medication drugs are many including: medicine cabinet at home or left-over past prescribed drugs; sharing of drugs with friends and relatives; pharmacies, traditional medical practitioners; family reserves etc, [35,47-50].

Studies done in university students in Hong Kong indicated that the health care professionals only played a minor role in the provision of drug information. Nevertheless, the concept of self-medication is well established among these university students as they recognize that minor illnesses could be cared for without seeing a doctor. Health care providers especially, pharmacy professionals should assume more active roles in the provision of drug information and counselling of drugs for self-medication [43,51].

Today, more and more patients are asking for information to resolve their non-prescription medicine purchase and usage dilemma. And, the pharmacist is reportedly the most widely accessible, friendly and consulted source by consumers for non-prescription medicine information. Therefore, pharmacists are in a position to assess the patient's problem and recommend an appropriate course of action. Pharmacists can deter healthy people from using costly or unnecessary health services or products and at the same time refer more ill people to appropriate health care providers and health services. However, this role in consumer self-medication has not really lived up to its potential [24]. And an optimal utility/risk ratio for self-prescribed drugs would require public health action and global involvement of practitioners [48].

1.3.4. Extent of self-medication

Increasingly, people manage a large proportion of their ailments without consulting a physician or a pharmacist. Yet pharmacists can play a role in helping people to make informed self-care and self-medication choice [16].

Self-medication is becoming an increasingly important component of health care in both developing and developed countries [12,14,24,34,45,52-56]. Studies on adults indicated that most people are able to discriminate between minor and major ailments and individuals themselves without visiting a physician deal with 87% of minor problems. Another study found out that more than 60% of the reported illnesses were dealt with using OTC drugs, with no doctor being contacted [14,24]. Still in another survey it was reported that in many parts of the world up to 80% of illness episodes are self-medicated with modern drugs and even when formal health care channels are used, it is often the consumer not the prescriber who determines whether and how the drugs are used [57].

Self-medication is documented as an integral part of health care therapy in developing countries such as Ethiopia, Cameroon, Uganda and Mexico [52]. But there is still a bias in the literature because many studies have focused on the later stages of the illness referral system when treatment is sought from a health care provider for symptoms, which have not responded to forms of self-medication. As a result studies have not documented the ordinary practices of self-medication of every day illness in detail [52]. However, self-medication is an important initial response to illness and many illnesses are successfully treated at this stage. Even when studies document on self-medication, they offer description of the “what” of self-

medication, but tell us little about the “whys” behind these practices [12]. What is called for is research on both the cultural understanding of medicine and of the life contingencies, which influence the way they are used. Such research requires a consideration of “when” and “for how long” questions. That is when do people self-medicate and what sets of symptoms trigger health care seeking behaviour [12].

In many developing countries, over 80% [27,52,58] of all drugs are purchased by people for themselves or a family member without a prescription. Self-medication is affected by socio-demographic and socio-economic factors [12,42]. Among the lowest income group there was up to 47% of self-medication and of which 46% of the drugs self-medicated were antibiotics [24].

Community based studies in Africa, Asia and Latin America have found that up to 70% of illness episodes are self-treated with modern/allopathic pharmaceuticals [58-60]. In retrospective research on self-medication, people often cannot recall even the name of the drug, much less the dosage schedule or course of treatment [61].

1.3.5. Self-medicating subjects

5.5.1. Pregnancy

There exists general misconceptions that since OTC drugs are readily available; these pharmaceutical agents can be viewed as safe to use by adults. Ingestion of OTC preparations during pregnancy results in placental transfer and accumulation of these drugs in the foetus. As the foetus lacks the ability to handle pharmaceutical agents, since renal function, metabolic pathway, etc, are not fully developed, drug exposure in uterus may produce deleterious effects

in the foetus but not to the mother [62].

The developing organism is unique in its responsiveness to drugs. The predictability of therapeutic effectiveness and safety of drugs during pregnancy using the adult as a model for pharmacokinetics and pharmacodynamics can result in grave consequences in the foetus. Drug toxicity, generally related to the advancement of somatic development of the embryo or foetus, can appear at variable stages during pregnancy [62-64].

The use of OTC self-medication has sufficiently increased during pregnancy, which lacks sufficient data indicating an OTC effect on the foetus. However, the consequences of OTC drug use need to be established, since these compounds continue to be used extensively, especially during pregnancy.

Some studies have indicated that women are more likely to self-medicate than men [12]. A survey done in Australia on patterns of medication use during pregnancy showed that the women used an average of 0.7 to 0.8 prescribed and 2.3 to 2.6 non-prescribed drugs (a total of 3.1 to 3.3) during the three pregnancy trimesters, compared with 1.0 prescribed and 2.2 non-prescribed drugs prior to pregnancy. Use of a prescribed and non-prescribed drug use was 96 to 97% across trimesters [65].

In a prospective study on drug use in France during pregnancy in outpatient department of a hospital showed that 84% of the pregnant women reported drug consumption, with an average of two drugs per week. And in a study done in Brazil, the prevalence of use of at least one medicine was 97.6% with an average of 4.2 drugs per woman. The prevalence of use of drugs

by prescription and self-medication were 94.9% and 33.5%, respectively [63-66].

Characteristics implicated to increase use of drugs during pregnancy were: maternal schooling (university level), salaried workers, over 29 years of age, married, medical history and alcohol consumption [64,66].

Drug use during pregnancy included those prescribed by health care provider and self-prescribed products. Among the most frequently used products identified by the different studies were: analgesics, vitamins/mineral supplements, antacids, antispasmodics, anti-emetics, benzodiazepines and antibiotics that were either self-medicated or used after prescribed by a health care provider [64,65].

As stated above, the use of drugs on which the safety and efficacy on the foetus is not clearly known may have adverse effects on the foetus as well as on the mother. For example, chronic use (prior to pregnancy) that happened in 9% of women, self-medication accounted 20%. After delivery, cases of malformations of the newborn, stillbirths, neonatal pathologies, resuscitations and withdrawal symptoms were observed [66,67].

Therefore, these facts must be taken into account when assessing the risk of uncontrolled drug use by pregnant women. Women need to be made aware/educated of the potential risks they expose their foetus to when they use drugs during gestational period. Health care providers should explain the risks of self-medication and the specific features of disease during pregnancy and also consider the contraindications and precautions in prescribing [63,64].

Elderly persons

Age related physiological changes alter the response of elderly individuals to drug therapy, placing them at heightened risk for adverse effects and drug interactions. Other factors influencing the therapeutic outcome of drug treatment include compliance, self-medication, multiple medications, functional impairment and economics [68].

A study was done in China on the following kinds of medication behaviour: Self-medication, using non-prescription medications, sharing medications, forgetting to take medications, hoarding medications, and combining western medications and traditional therapies. In comparing the difference between the urban and the rural elderly, the urban elderly had more accurate medication knowledge and displayed better medication-taking behaviour. An elderly person's age, gender, education level, marital status, living status and health belief were found to affect one's medication knowledge and behaviour [16,69].

Self-medication increased with age [69]. Age related changes in body composition towards the end of life might also affect drug distribution. On the average, lean body mass decreases and body fat increases in relation to total body weight in the aging individual. Age itself, rather than body size and composition, also affect the distribution and elimination of many drugs. Drug binding, metabolism, and elimination may change as a function of age [70].

The probability of experiencing adverse effects from a drug in adult appears to increase with age. This is related in part to the decline in organ function that occurs as a result of advancing age, for example cardiac output and glomerular filtration [70]. More extensive, specific studies of drug consumption by the elderly should be carried out to explore prevalence of use,

which are used most frequently, frequency of adverse effects, effects on quality of life and social support networks for the elderly [71]. Therefore, education of both health care professionals and the general public on proper use of drugs is urgently needed to ensure the safety of taking medications by the elderly [71].

Neonates, infants and children

Dosing guidelines for children are more complicated than those for adults. Estimate of the dose for infant and children are often obtained on the basis of surface area of the young patient relative to the surface area of an adult. Evidence indicates that children require and tolerate larger milligram per kilogram body weight doses of many drugs than do adults. This larger requirement is related to the fact that total body water and extra cellular fluid make up a larger percentage of the total body weight in children than in adults. Total body water decreases with age, from 78% of the newborn's body weight to 60% of the adult's body weight. Difference in extra cellular water is even greater, 45% of body water in the newborn but only 20% of the adult's body weight [70].

The most dramatic age-related differences in drug elimination often occur between the newborn and the adult. Most of the enzymatic microsomal systems required for drug metabolism are present at birth, but their titres are usually lower than adult levels. In general, drugs subject to biotransformation are eliminated more slowly in newborns than in adults [70]. These factors, the increased requirement and the slow elimination of drugs in newborn expose them to high risks.

A study done in a Philippine village of the treatment administered to children with coughs, colds and diarrhoea by their parents reveals that modern drugs are often incorrectly or unnecessarily used [22]. The consumption of analgesic/antipyretics drugs in children is high and increasing particularly for non-severe respiratory disorders, often being given three times daily for several days in succession [22], regarding analgesics as having curative properties [22,72].

Adult self-medication

Self-medication is a common event [44,73]. To use drugs correctly, a basic knowledge about drugs is required. Inadequate data are available about adult's knowledge of drugs. A study designed in order to explore adolescents' drug use knowledge and the factors that influence them indicated that adolescents gain drug knowledge through drug consumption and not before taking drugs. This leads to a potential risk particularly in the case of self-medication [44]. And in other studies it was shown that college students used the frequently advertised products [74,75].

1.3.6 Illnesses/symptoms of illness treated with self-medication

Self-medication is common for a number of reasons: perception of the severity of the disease, accessibility and availability and expense involved with health services, level of satisfaction of the consumer on the health care and professional services etc. Taking non-prescription medicines is the initial response in almost half of all illness episodes, particularly for symptoms viewed as non-serious [5].

Across European countries there is a great commonality of treatment areas suitable for self-medication, although not all medicines used within these groups are suitable for self-medication. The following have been identified as treatment areas: pain conditions, skin problems, acne, colds, soar throats, coughs, hay fever, oral hygiene, eye problems, vitamins and minerals, food supplements, smoking cessation, upset stomach, constipation, diarrhoea, travel sickness, haemorrhoids, sleeping and calming, gynaecologic problems, cystitis and worm treatments. There may also have additional treatment areas that can be treated with self-medication [40].

Studies done on self-reported prevalence study of illnesses that prompted self-medication showed that cough/cold/influenza, digestive disorders, accidental injuries, headache/dizziness, anxiety/insomnia, skin problems, asthma, liver disease, fever, boils were the prevalent health problems [5,53]. Self-perceived poor health, smoking and alcohol consumption were associated with many of these illnesses.

Treatment choice depends on the illnesses suffered and self-medication was reported to be the dominant form of health care. The scope of self-medication is increasing in many countries [5]. For example, dyspepsia is a popular case. The commonest reasons for self-medication were heartburn, gastrointestinal pain and acid regurgitation. More than three-fourths of respondents had used self-medication drugs for dyspepsia. However, knowledge about the proper use of drugs was poor and is likely to be used improperly [76]. Survey and diary studies of medicine taking behaviour indicated that 70% to 80% of illness is managed by self-

care without intervention of a physician [12]. Self-medication was found to be the dominant mode of health-seeking behaviour, especially in the case of pain.

1.3.7 Products consumed during self-medication

Illnesses that can be self-diagnosed and treated and drugs that can be self-medicated by drug consumers are some how known. There exists similarities in the ailments that are treatable with self-medication across European countries; however, there are significant differences in the share that self-medication products have of the total pharmaceutical market. These range from 26.1% in Switzerland a system, which encourages self-medication down to 7.8% of the total market in Sweden. In the large pharmaceutical market of the UK, 20.7% and Germany, 17.7% of the total pharmaceutical market is accounted for by self-medication products. The proportion of unprescribed to prescribed drugs was 1:1.75 with analgesics, antipyretics, expectorant and antitussives as the most commonly requested ones [77,78].

Antibiotics/Antimicrobials

World wide [79] and in developing countries [80] data indicate that antibiotics are frequently used indiscriminately and often misused [81-88] and self-medication increased with socio-economic status [87].

Studies indicated that the most frequently used agents were amoxicillin, cotrimoxazole, erythromycin, ampicillin/cloxacillin, metronidazole, neomycin, tetracycline and cephalixin [79,80,85,88,89]. The mean quantity antibiotics purchased were 11 tablets/capsules and intended to be used for 3 days or less [89]. The main reasons for not taking a full course of antibiotics were not economic constraint only but the purchaser's poor knowledge about

antibiotics. Analysis indicate that age, length of symptom and kind of treatment used before could be used as predicative variables for the decision to buy antibiotics in preference to alternative drugs [89]. Antibiotics are used when illness lasts longer than one week and have not yet been taken [89]. The sources of antibiotics used were: leftover from past treatments, from pharmacies, purchased OTC, given by friends [81,88,90-92]].

There is currently worldwide concern about the problems of antimicrobial resistance. A number of important bodies such as WHO and the British House of Lords have identified the reasons for the emergence of resistance to antimicrobial agents and the preventive measures which need to be urgently implemented to curb the spread of resistant organisms. The reasons for the emergence of resistant organisms are not difficult to find [40].

During the past half century, since the discovery of penicillin by Fleming, people in both the developing and developed world have accepted antimicrobial agents as a fundamental right, not only to demand at the first sign of a trivial infection but also to self-prescribe with readily available, cheap antimicrobial agents. Such unbridled abuse of antimicrobial agents not only in man but also in animals could lead down a slippery slope to an era where the microbe may rule the supreme once again [93]. Resistances to commonly used antimicrobials such as ampicillin, cotrimoxazole, chloramphenicol and erythromycin, etc, [85,93] in the different parts of the world.

Indeed, some authorities are forecasting a “post-antibiotic era” as opposed to the pre-antibiotic era before the discovery of penicillin in the foreseeable future when infectious diseases will once again be almost impossible to treat [94].

It is not uncommon that antibiotics are used for diseases that are caused by viruses [81]. Studies done in Mexico showed that the main perceived reasons for self-medication of antibiotic drug use were acute respiratory tract ailments, and gastroenteritis [80,90]; for minor symptoms such as cough, sore throat, stomach upsets, and diarrhoea [89]; colds [90] STDs [92]; for infectious respiratory and buccal processes [88].

Respondents also said that they had purchased insufficient quantity and used antibiotics for less than 5 or 3 days or even less [80,89]. Together with therapeutic insufficiency and storage of antibiotics in homes, auto medication is currently one of the most serious problems in antibiotic therapy since it is accompanied usually by improper usage [88].

To fight the spread of drug resistant microorganisms, indiscriminate use of antimicrobials need to be guarded against [92] and educational efforts must be redoubled to promote the rational and effective use of drugs, especially antibiotics [79]. Since self-medication alone is not the only factor that leads to misuse of antibiotics, education to the health care providers and the public on the proper use of drugs seems to be the most important tool to control misuse.

A study done in Philippines revealed that antibiotics are used commonly by commercial sex workers prophylactically against STDs and HIV and seven times less likely to use condoms with greater than 80% of their customers. Use of antibiotics prophylactically by commercial sex workers offers them a false sense of security in high-risk environment. Self-medication with low dose prophylactic antibiotic provides no protection against STDs, impedes STD screening efforts, and contributes to antibiotic resistance [95].

Nonsteroidal anti-inflammatory drugs (NSAIDs)/analgesics self-medication

NSAIDs are one of the most widely used classes of drugs world wide, with as many as 8% of the global adult population taking prescription on NSAIDS at any given time [1].

It is well documented that NSAID-related GI complications have been established and can be broadly divided into two uncontrollable factors, (elements such as age, gender, co-morbidity and a history of GI conditions) and controllable factors (such as the dose, type, and duration of NSAID treatment and co-therapy and possible helicobacter pylori infection) [96].

The increasing trend toward self-medication raises questions about the potential for GI complications with OTC doses of NSAIDs. Although there is some evidence that the frequency of GI complications with OTC doses may be less than that seen with prescription doses, it still exists. In light of our current understanding and because paracetamol continues to demonstrate a favourable side-effect profile, it remains a first line analgesics for everyday pain [96].

In a study done in Sweden, it was shown that among people with chronic pain, use of analgesics is common. Women reporting chronic pain consumed more analgesic and sedatives than corresponding men. Besides, female gender, self-perceived poor health, high pain intensity, insomnia, physician consultation and self-care action helped to explain medication with analgesics [97,98]. Marital status, educational level, socio-economic status and social network conditions were found to be of minor importance [98].

Antipyretic/analgesic drugs are among the most commonly used drugs in children. Their efficacy and adverse effects have often been debated. In a study done in France between 1981 and 1992, the proportion of children exposed to antipyretic/analgesics increased significantly. Among them, the percentage of subjects treated with aspirin decreased (-27%), in contrast; the percentage for paracetamol (+19%) and for NSAIDs (+179%) had increased. The main reasons for the use of these drugs were: nasopharyngitis, influenza like syndrome. Self-medication and/or consumption of antipyretic/analgesics on the advice of non-qualified people were as common as medical prescription [98,99].

Although a relatively responsible picture of self medication emerges, some adolescents engaged in inappropriate OTC medication use (e.g. the common use of aspirin) highlight the importance of providing adolescents with correct information about these medications [49].

1.3.8 Importance of self-medication

The demand for health care continues to grow faster than gross national product in most

countries. This demand is set to increase over the foreseeable future. One possible reason argued is increase in self-medication products as a treatment of minor ailments, with consumers self-medicating rather than visiting a doctor [78]. Consumers are willing and able to take more responsibility for their own health and by so doing a significant amount of resources could be utilized in more pressing areas than patients receiving consultation and prescription for minor ailments.

Consumer behaviour research has shown that people want to take responsible self-medication, know what illness they could treat themselves, use medicine with caution and when to seek professional help [28]. Self-medication is an important initial response to illness and many illnesses are successfully managed at this stage [54]. Contrary to doctors views, WHO marks the existence of a valid role for self-medication in developed societies [38,100]. Studies indicate that most people are able to discriminate between major and minor ailments, which could be treated upon consultation of a physician or addressed through self-medication [26].

The current resurgence of interest in self-care in health and self-medication is associated with several factors. These include: [12,101]

- Self-medication provides a more affordable though often less desirable response to illness when the financial cost of health care providers fees are unaffordable and in convenient in obtaining professional care are considered;
- Some people are prompted to self-medicate due to lack of faith in the health service for treatment of “ disorders” as distinct from “disease”;
- There appears to be an increased emphasis on taking personal responsibility for own health, and the sheer availability of a greater number of products with which to

experiment;

- Symptomatic relief with OTC medications allows individuals to manage chronic complaints, especially those not validated by doctors. They feel more capable than doctors on assessing the fluctuations and flare-ups of their ailments and
- When both complaint and its prescribed treatment are routine or familiar, individuals may take charge of an illness episode unless the complaint continues beyond the expected duration or symptoms unfamiliar are seen [101].

Political response to global threats to health and increasing health care costs has been to direct responsibility for health toward the individual. This implies that individuals rather than the state are responsible for maintaining health. This is attractive in an era of cost cutting in health care and social services [101].

The rise in pharmaceutical products available for self-medication (increase in prescription only to OTC drugs switch) [14,21,24,26,84,101-103] articulates with this ethic of personal responsibility. It has been argued that self-care of common illnesses constitutes self-reliance and a positive contribution to primary health care. Greater knowledge about and access to medications reduces dependence on health care providers who are scarce, costly, or have a stake in mystifying illnesses, and may also provide a means of controlling health care costs.

Studies indicate that the high prevalence of self-medication in the general population, and the high rates of accurate use and the small percentage of adverse drug reactions, would lead us to think about promoting self-medication and including it in specific health education programs [84]. Direct to consumer drug advertising is a useful medium for educating people and disseminating product information [104]. But the accuracy of the information should be

checked against standards [104,105].

Other studies also argued that increase in self-medication as an important component of health care. And they recognized that a country's health care resources couldn't support the enormous demands placed upon it by ill health if individuals do not resort to self-medication at least some of the time [26]. It is suggested that treatment of minor illnesses with self-medication can save costs than in other domains of health care and can reduce absenteeism from work. This larger role for the responsible self-medication requires optimal education and instruction of the consumer if it is not to have an adverse effect on people's health. Self-medication is a hidden asset to the primary health care system [106-107].

1.3.9. Problems of self-medication

Critiques of self-medication from the medical community have characterized self-care as questionable if not dangerous. And most doctors attach negative connotations to self-medication, as opposed to others forms of self-cares. Pharmaceutical manufacturers on the contrary, recognize the market potential (e.g. in the USA in 1993 retail sales of prescription drugs topped \$55 billion and sales of OTC totalled \$9.7 billion) represented by lay consumers and lobby for the conversion of many medicines from prescription only to OTC status [12,38].

The increase in the number of OTC products can be said to reflect the increased medicalization of society or "co-modification" of health care. Authors argued/questioned whether the increased availability of medications for self-treatment foster agency or merely creates new relationship of dependency and power over the patient, substituting control by the

pharmaceutical industry for control by practitioners [12,13].

Pharmaceuticals can be dangerous in any one's hands, particularly so in the hands of those who have little awareness of potential risks and correct administration. It is extremely difficult to investigate the rate at which the misuse of drugs induces illness. There are ethical problems of doing research without advising people of risks of a medication; problem of documenting due to delayed effects of some drugs and problem of confounding side effects of medication with symptoms of the primary illness [61].

Although most self-medication with non-prescription drugs result in desired outcome, mishaps are not uncommon. Several studies have indicated that there are risks such as misdiagnosis, use of excessive drug dosage, prolonged duration of use, drug interaction, poly-pharmacy [101] and toxicological and pharmacological risks associated with improper use of non-prescription medicine [24]. Serious side effects occurred due to self-medication with analgesics and anti-inflammatory agents. This occurs more frequently in women than men. It was indicated for better analysis of benefit/risk ratio of self-medication including bacterial resistance should be explained [34,93]. Safety issues that should be considered include age of the user, pregnancy, underlying diseases and the potential for drug interactions [93].

A large number of consumers are known to lack the ability to self-diagnose self-limiting conditions accurately. Other problems associated with OTC drug use by consumers include: lack of understanding the effects of medicines and the necessity of medication; understanding the clinical conditions; inability to interpret labelled information; misuse; occurrence of

harmful side-effects; interactions with other prescription or other OTC drugs, food, alcohol, concurrent diseases and patient condition [24,29].

It has been argued that increased switch from prescription only to OTC drugs of selected agents with indication for short-term use in specific minor infections and illness is likely to have advantage to the user. However, to safeguard against their improper use, instructions need to be included in the patient information leaflet [93]. Self-medication with antibiotics [26,27,57] has been widely reported leading the WHO to call attention as a cause of antibiotic resistance. For example, studies in Ethiopia [108-113] indicated rising drug resistance. In addition, drug side effects, allergic reactions, and toxic poisoning have become a cause of alarm [34,113,79]. Increased switches from prescription to OTC [114,115] provide patients with improved access to effective therapies; these switches save both the health care provider and the patient time. However, the overall effect on the health care costs is complex. Short-term cost savings may be offset over the long-term problems due to inappropriate use or sub-optimal therapy. Some raised the issue that some patients may not be able to use OTC drugs appropriately for certain diagnosis or chronic conditions or in high-risk situations [114].

1.3.10. Over-coming problems of self-medication

We noted above that there are arguments going on in favour as well as against self-medication. Most of the arguments are valid and need to be reconsidered. However, remedial actions are necessary to promote appropriate self-medication. Doctors who prescribe medicines can have an important role in raising people's awareness concerning the consumption of medicines and indirectly in an effort to control health costs [107].

The role of community pharmacies and pharmacy professionals

Pharmacist counselling can minimize some of the attendant risks of self-medication by helping consumers in identifying illnesses which are amenable to self-medication or to be referred; to pick the most appropriate product; counselling on its proper use; and monitoring for desired therapeutic outcome. These and the increased prescription to OTC switch are the reasons for greater role of the pharmacist. Unfortunately, studies indicate that the pharmacists' role in consumer self-medication has not really lived up to its potential [24].

In fact, the community-based pharmacies are in a unique position to provide medication services for their patients particularly in providing counselling on the use of prescription and OTC medications, monitoring of adverse drug reactions and provision of drug information to their community. Evidence of benefits and acceptance of the above expanded role of community pharmacy services have been shown by studies [116].

Quantitative and qualitative analysis was done on the impacts of counselling by pharmacists to patients health outcomes and the influence of a special training on the services provided by pharmacies with regard to self-medication [117]. It was found that advice giving and counselling by the pharmacists in self-medication have a measurable impact on self-medication outcomes. It was also revealed that patients value the information provided by the pharmacist. The study suggests that the quality of primary health care in self-medication would improve if pharmacists' involvement were even more intense.

In a study done to detect obstacles to self-medication for geriatric patients, the pharmacist made more recommendations than other health professionals for improving the safety and efficacy of drug therapy and medication compliance. Recommendations included

simplifications of medication regimes, requesting drug levels or specific laboratory tests, and the use of compliance aids [118]. Pharmacy and pharmacists are called upon to play a positive role in: fostering the correct use of drugs through the sale of drugs and by filling prescriptions; assisting patients in self-medication; being involved in and supporting custodial medical care for the elderly and home care [72].

Studies on pharmacy practice have called attention to the role played by pharmacists in fostering self-medication among the public. Left undocumented is the extent to which clients passively follow the advice of pharmacy personnel or question their motive or expertise. Adequate attention has been paid to pharmacist-client interactions that are sensitive to the social, cultural, and economic context in which medicine sales and advice occur [119]. Pharmacy is identified by the user as a primary care resource, which was both of its closeness and opening hours and trustworthiness. They provided health care support for treating illness and advise on the use of medications. Use with serious clinical picture was referred from the pharmacy to the appropriate doctors [39,120].

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 benefits and minimizing risks [101].

The role of drug consumers in self-medication

Nowadays people are keen to accept more personal responsibility for their health status and to obtain as much sound information as possible from expert sources in order to help them make appropriate decision in health care [41].

Role of the drug consumer in self-medication is the practice whereby individuals treat their ailments and conditions with medicines, which are approved and available without prescription, and which are safe and effective when used as directed. It requires that: medicines used are of proven safety, quality, and efficacy; and medicines used are those indicated for conditions that are self-recognizable and for some chronic or recurrent conditions (following initial medical diagnoses). In all cases, these medicines should be specifically designed for the purpose, and will require appropriate dose and dosage forms.

Such products should be supported by information, describing:

- How to take or use the medicine;
- Effects and possible side-effects;
- How the effects of the medicine should be monitored;
- Possible interactions;
- Precaution and warnings;
- Duration of use; and when to seek professional advice [12].

Responsible self-medication can:

- Help prevent and treat symptoms and ailments that do not require medical consultation;
- Reduce the increasing pressure on medical services for the relief of minor ailments, especially when financial and human resources are limited;
- Increase availability of health care to populations living in remote areas where access to medical advice may be difficult; enable patients to control their own chronic conditions [37].

As can be seen from the previous topics, self-medication has got problems and advantages.

The contribution or importance of self-medication to the people's health of a country will be

appreciated if it is within the scope. Prospective self-medication and knowledge of drugs are not well studied in this country. This study attempts to address some of the issues of self-medication practices and consumers drug knowledge.

1.4. Study area, Addis Ababa

1.4.1 Location and geography

Addis Ababa is the capital city of Ethiopia and Addis Ababa City Administration. It has an estimated area of 540 square kilometres. Addis Ababa is situated between 9 degrees latitude and 38 degrees longitude in a plateau that stretches at the range of 2200 to 2800 meters above sea level. The climate varies from about 9 months of dry season to 3 months of cool and rainfall season. The temperature varies between maximum of 22.9⁰ C and minimum of 10.8⁰ C [121,122]. Addis Ababa is subdivided into six administrative Zones and 28 Woredas and 328 Kebeles. Kebele is the smallest administrative unit with the range of 5000 to 7000 population.

1.4.2 Socio-demographic characteristics

Population

Addis Ababa has a total population of 2, 432, 426, 49 % males and 51% females (with M: F ratio of 1: 10064). Of the total population 31.75% are of ages below 14 years and 2.65% are above 65 years of age. Women in the childbearing age group (15-49 years) and under 14 years old children together constitute 62% of the population [121,123].

Households

Average household size of Addis Ababa is about 5.2. The average number of persons per room is 2.1. The number of persons per any type of existing bedroom is estimated to be at

least 4, which serves as an indicator of high housing density favouring the possible transmission of communicable diseases and possibly high consumption of drugs [121].

Religion

Even though Addis Ababa's population consists of many types of religions, the major ones are: Christians 86.6% (81.3% orthodox, 3.9% protestant, 0.8% Catholics) and Muslims 12.67% [121].

Marital status

The marital status of the population above 15 years is: married 43.9%, never married 38.8%, divorced 9.3%, widowed 5.8% and separated 2%[121].

Education

There had been a total of 619,875 enrolled students in 2000/2001. Total female enrolment was 51.8%. In total, they were 72.0% in elementary (1-8 grades), 28.0% in secondary (grades 9-12) schools [124].

1.4.3 Health facilities, prevalent illnesses and drug consumption

Health facilities

Addis Ababa has got an ever-increasing number of health facilities. Currently, it has 20 hospitals (3904 bed capacity) of which 8 are private, 3 OGA and two NGO; 19 health centres, about 239 private clinics, 33 health posts and 177 drug retail outlets. All of these do provide some kind of health service and dispense drugs [122].

Prevalent illnesses and type of services sought

According to the 1998 Central Statistics Authority (CSA) Health and Nutrition Survey, 24%

of the respondents at national level were found to be ill during the last 14 days prior to the survey. The remaining reported no illness. The proportion of persons who reported any illness (9.4%) was the lowest for Addis Ababa. Individuals who reported to have been suffering from two illness types were 4% for national (1.5% for Addis Ababa (AA)) compared to those who reported one illness type, which were 20% (7.9% for AA). The highest proportion of illness were found among children under 5 years age and persons aged 45 and above years; and the lowest proportion was observed for children 10-14 years of age. Prevalence rate was also higher for females than males. The prevalence of having illness were much higher among rural compared to urban population irrespective of age group and sex [125].

The most prevalent illnesses reported per 1000 population were: all fever, 56 (9 for AA); all cough, 55 (26 for AA); diarrhoea and abdominal pain, 45 (21 for AA); condition of neck and head 39 (15 for AA); venereal disease, 39 (15 for AA); condition for neck and head 39 (15 for AA); condition of skin, 16 (55 for AA); maternal health problems, 2 (1 for AA) and other conditions, 23 (16 for AA) [125].

Health consultation and treatment

Two in five households (44%) utilized some type of health service, with the most common treatment sought for a sick child (31%) and for immunization (34%), Demographic and Health Survey (DHS) 2000 [123]. Of the total who had health problems, 61% were reported to have consulted for health assistance of any kind or modern otherwise including self-care. This was higher for males (63%) than for females (59%); urban (83%) compared to rural (58%) and increase with education (86%) for 9-12 grades compared to 57% with no education. Health consultation was higher for Addis Ababa, 83% [125].

A higher percentage of urban households utilized any type of health service, with the urban households being three times more likely than rural households to have accessed information on the prevention of sexually transmitted diseases, breastfeeding and infant feeding. The frequently consulted facilities were: clinics, 33%; health centres, 18%; pharmacies 16%; traditional healers, 9% and hospitals, 9%. A significant proportion of the population sought health service from self-treatment, 5% and lay person, 4% [5]. The majority of households (42%) utilized health services at government health stations or clinics, and 29% government health centres, and 15% of the households utilized care at private health facilities [123].

The reasons mentioned for not consulting modern health service institutions in Addis Ababa such as clinics, health centres, hospitals, health posts and pharmacies according to CSA, DHS 2000 were: they did not believe it would help, 36%; too expensive for them, 31%; used traditional medicine, 7% [125]. These situations might have lead to an overall state of poor health for the residents of Addis Ababa. Poor environmental health, malnutrition, low immunization coverage, inadequate or inaccessible health care services, including reproductive health/family planning services and high morbidity and mortality of infants and mothers are characteristics of the city.

Social problems

The urban nature of Addis Ababa has characterized with substance abuse; socially affected groups/street children; abandoned, disabled and needy geriatrics and displaced people and also harmful traditional practices. These problems are further compounded by higher rate of unemployment, accidents such as traffic, fire, flooding, electricity and poisoning [122].

Drug consumption

In a study done by the Central Statistics Authority (CSA), DHS 2000 on purchasing of drugs 12 months prior to the demographic health survey, nearly 1 in 2 (63.4% in Addis Ababa compared to 48.4% rural households had used drugs [123]. Pharmacies and other medical facilities served as the main source of drugs, with 98.3% for Addis Ababa and 88.6% for national households that used drugs in the 12 months prior to the survey of which 15% were obtained from medical facilities. And only 1.7% Addis Ababa households compared to 14.5% for the national average purchased drugs from informal supply but the rural households are three times more likely than urban households to have obtained drugs from non-medical or pharmacy facilities [123].

The average number of drugs per prescription for hospitals was 3.0 and 1.8 for health centres. According to reports of the health bureau for 1997, a total of 40.3 million Birr worth drugs were consumed by the population with an estimated per capita drug consumption of 16 Birr (2.4 USD) [122]. The average cost of drugs per prescription for hospitals was 1.2 USD and 0.8 for primary health care units. Eighty percent of patients treated in hospitals and 21% in primary health care units were getting drugs free. However, the magnitude and share of self-medication from the total drug consumption was not known.

1.5. Operational definitions

Actual drug users are drug users who go to the community pharmacies to purchase drugs for themselves for self-medication.

Community pharmacy is a licensed drug retail outlet lead by a pharmacist.

Drug consumers are those who come to purchase drugs for themselves or for others, necessarily they may not be patients and also may not need to be called patients.

Drug retail outlet is a facility, which dispenses prescription only or non-prescription/OTC drugs upon the request of the client/customer.

Over-the-counter or non-prescription drugs are those drugs that can be legally purchased from a drug retail outlet without having a prescription from a licensed health care provider. These drugs do not include prescription only drugs.

Pharmaceutical care is the provision of patient care services; which is the responsible provision of drug therapy, for the purpose of achieving definite outcomes that improves a patient's quality of life. It is the synthesis of the two activities of product and drug information package of goods and services designed to suit the needs of the individual patient.

Prior knowledge of drugs is knowledge of drugs of actual drug users or messengers before they are provided with drug information at the community pharmacy at that point in time.

Self-care is what people do for themselves to establish and maintain health, prevent and deal with illnesses.

Self-medication is one element of self-care. Self-medication is the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms. In this study self-medication is limited only to modern pharmaceuticals at the community pharmacy level.

Messengers are drug users who go to the community pharmacies to purchase drugs for others (not for themselves) for self-medication.

Mesto is a term referring to mixed use of English and Amharic languages

Note:

Drug, Pharmaceutical, Medicine and Medication these terms are used synonymously in this thesis.

Drug consumer and patient are used interchangeably here.

The terms, including **medication, medicine, drugs** refer to substances that are biologically and/or physiologically active. Often we are concerned with their use in the prevention, diagnosis treatment or cure of disease and they are used interchangeably.

1.5.Objectives

1.5.1 General Objective

The general objective of this study is to assess the knowledge on drugs of the drug consumer and self-medication practices and influencing factors in the sampled population.

1.5.2 Specific Objectives

The specific objectives of this study are:

- To assess knowledge of drugs of the drug consumer;
- To assess the extent /type of self-medication practices;
- To identify the common causes of illness/symptoms that necessitate self-diagnosis and self-medication;
- To identify the frequently requested drugs/category of drugs during self-medication;
- To identify factors influencing self-medication;
- To identify responsibilities of the drug consumer during self-medication; and
 - To identify or recommend specific areas of research on self-medication.

2. STUDY METHODS

2.1. Study area and population

The study area was Addis Ababa city administration. The study facilities were drug retail outlets, community pharmacies. Although Addis Ababa is divided into six zones and 28 Woredas; for this study it was divided into four major geographic areas, to keep the relative homogeneity of samples. The dividing lines were the main roads from Gojjam to Nazareth road and from Dessie to Jimma road both crossing through Maskal Square (Figure 2.1: Map of data collection sites). Addis Ababa community consists of people of all ranges of income and education, many kinds of religions, and other socio-demographic characteristics. Addis Ababa also represents both types of epidemiological characteristics i.e. communicable diseases characteristics of developing countries and chronic diseases, which are characteristics of developed world.

2.2. Design of the Study

The data for this study was collected by the survey method in community pharmacies. The structured research instrument was an interview schedule, which sought information on demographic background; self-medication practices and consumers drug knowledge. The interview schedule was used to interview persons who have just come to the community pharmacies for self-medication during the study period for their own use or as messengers for others. This study is a prospective cross-sectional study about knowledge of drugs and self-medication practices of drug consumers. The study followed a multi-stage stratified sampling of drug retail outlets (by level, area and ownership) and drug consumers (by the different decisions made). The study was conducted from January 1 to February 28, 2002 at community pharmacies found in Addis Ababa.

2.3. Samples and sampling

There are three types of drug retail outlets: community pharmacies, drug shops and rural drug vendors. All drug retail outlets found in Addis Ababa were listed out and stratified by their level, as pharmacies and non-pharmacies. All the non-pharmacies were excluded from the study. The pharmacies were again stratified by area as described above. Again, all pharmacies in the four areas were stratified as private and public (City Council) community pharmacies and Red Cross community pharmacy. Random samples of six community pharmacies of all categories, private and public were taken from each of the four areas see Figure 2.2: Process of sampling of pharmacies).

There were two major groups of drug consumers (patients with prescription and those without prescription) going to these data collection sites, community pharmacies. Drug consumers who went to the community pharmacy to purchase drugs with prescription are excluded from the study. The other group consisted came to purchase drugs without prescriptions (self-medication) during the study period were the targets of the study. Drug consumers coming without prescriptions are again subdivided into two; actual drug consumers and messengers. Actual drug consumers are drug consumers who come to the community pharmacy for self-medication for his/her own ailment. Drug consumers messengers are drug consumers who come to purchase drugs not for themselves but for others. From these two types of target drug consumers those who come to request for contraceptives and health care provider respondents were excluded from the study (Figure 2.3: Process of sampling of drug consumers).

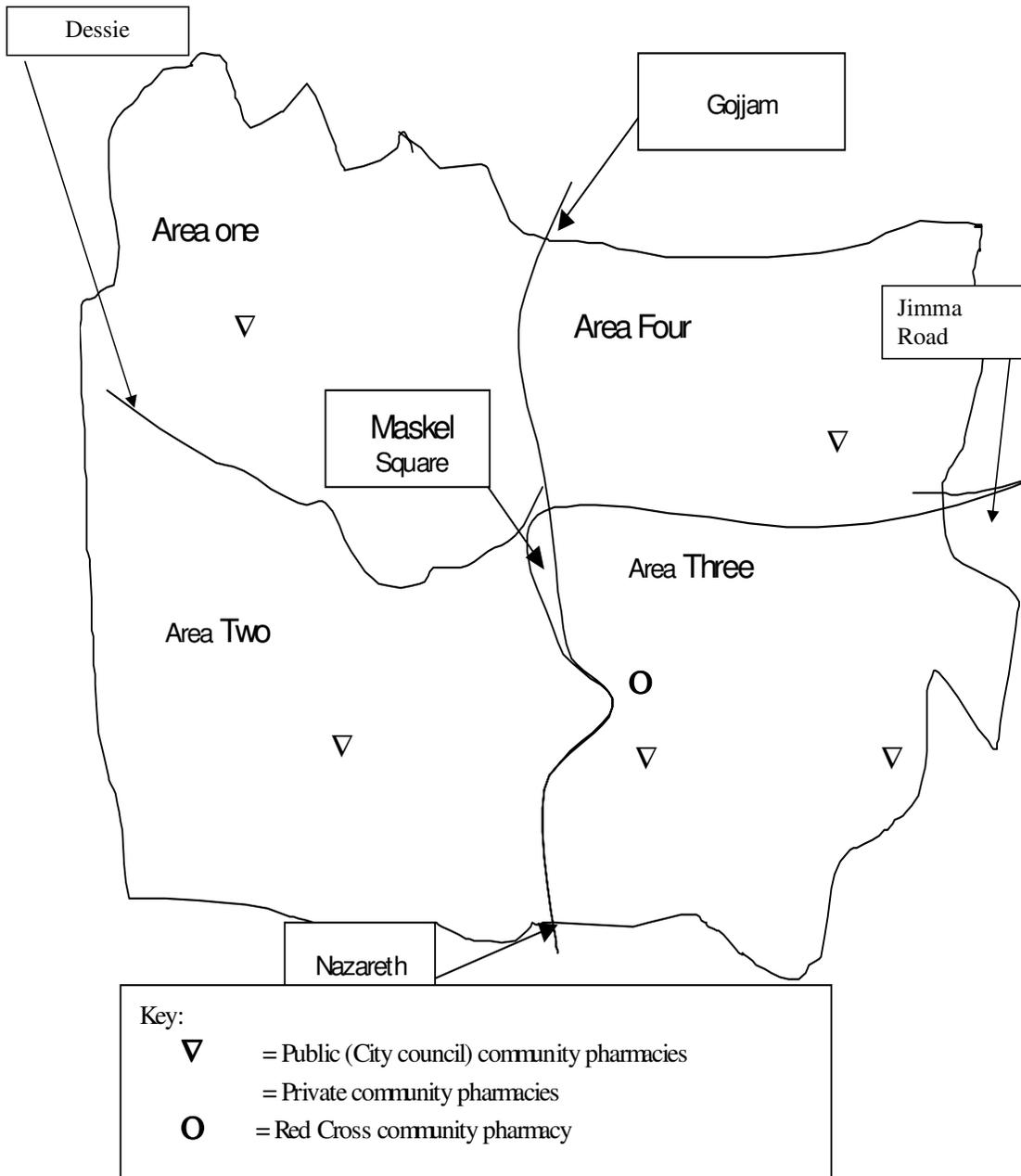


Figure 2.1: Data Collection Sites and Ownerships of Community Pharmacies

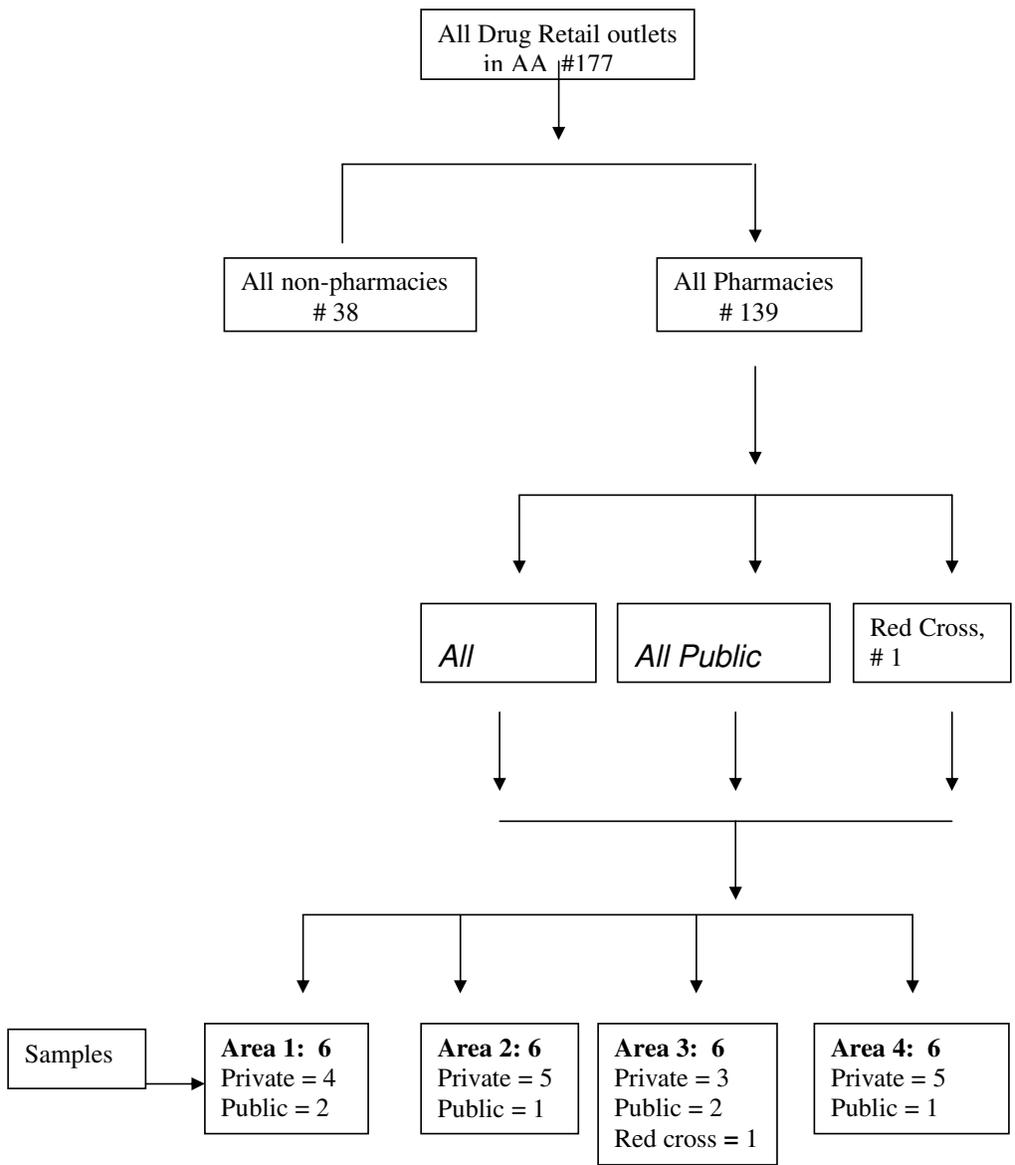


Figure 2.2: Process of Sampling of Community Pharmacies

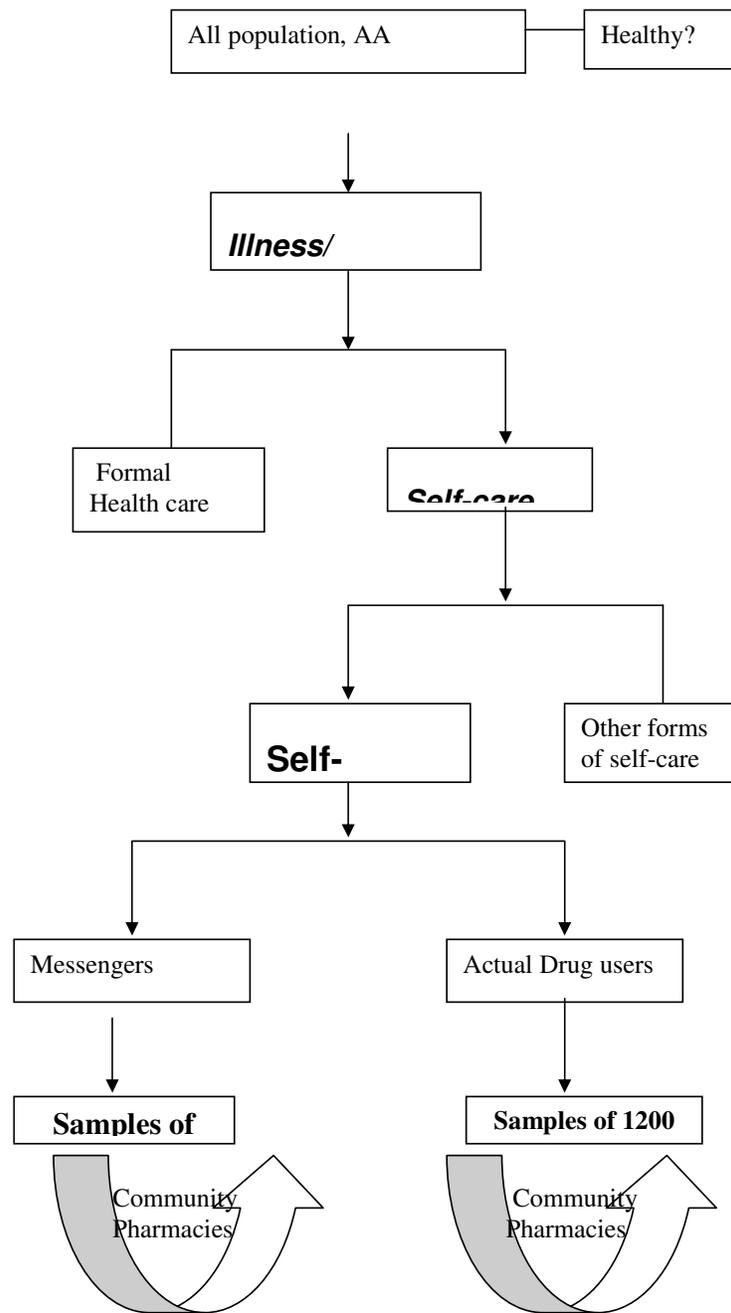


Figure 2.3: Process of Sampling Drug Consumers

2.4. Study Instruments

There were two types of study instruments (interview questionnaires) used for this study. Questionnaire form A, questionnaire for actual drug consumers, consisting of three parts and Questionnaire form B for drug consumer messengers containing two parts.

The first part of both questionnaires (form A and B) has got entirely closed-ended 10 questions and deals with the socio-demographic/socio-economic characteristics of the respondent. Part two of questionnaire form attempts to investigate self-medication prospectively. This part asks about the type of illnesses or symptoms of illnesses and their duration addressed by self-medication; the type of products consumed; the reasons and sources of information for self-medication; and the knowledge of the respondent on the products and other related questions. This part of the questionnaire contains both closed and open-ended questions.

The third part of questionnaire form A and the second part of questionnaire form B deal with prior consumers drug knowledge. It asks questions such as the commonly used/known drugs remembered; drug information requirements; knowledge of drug-drug, drug-food, drug-alcohol, drug-disease, and drug-patient age-interaction of drugs; proper use, compliance, storage of drugs at home; dosage form preferences of drug consumers and other aspects of drug knowledge of respondents. Questionnaires were accompanied by a detailed guideline on how to interview respondents by the interviewers see Annex 1, 2, and 3.

2.5 Pre-testing of the questionnaires and orientation to data collectors

The two types of questionnaires were prepared and pre-tested in selected community pharmacies, which are similar to actual data collection sites but not included in the study.

Data collectors and /or supervisors and investigator did the pre-testing. Then important feedbacks obtained from the pre-testing were incorporated to make the final form of the questionnaires. In addition, orientations of the data collectors were given at the site of data collection. Every data collector was followed either face to face or through telephone by supervisors and/or investigator to clarify doubts and standardize the data collection.

2.6. Data collection and analysis

As mentioned above, this study used two types of structured interview questionnaires as data collection instruments and was administered /filled by oriented data collectors and supervised by experienced supervisors. For the whole study, there were four data collection supervisors and at least one data collector per sampled community pharmacy. All data collectors and supervisors were pharmacy professionals. All the data collectors and supervisors had been given the orientation about the overall idea of the project and particularly, how to approach and request the respondents to be interviewed. The objective of the study, confidentiality of the research and other ethical considerations mentioned in the interview guideline were explained for every interviewee. After explaining these, every respondent was asked for his or her willingness to participate in the study. This process helped in the standardization and uniformity of the data collection. Any doubts and queries by the data collectors were communicated through telephone or face to face by either the supervisor and/or investigator.

First of all the letter written from the School of Pharmacy were given to the owner and/or the pharmacist in the community pharmacy to solicit their collaboration. Data were collected in the sampled community pharmacies and from the sampled population over two months duration using a structured and pre-tested questionnaires. Data collection supervisors and/or

investigator intensively and extensively supervised the data collection. Particularly, the first few questionnaires at each study community pharmacy were used to closely follow and provide immediate feedback and make adjustments by the data collectors.

After the data were collected, inspected/cleaned, coded and entered by the investigator, it was entered into EPI Info Version 6.0 programmed for this purpose. The responses to the open ended questions were grouped and coded and analysis made accordingly. Information was generated based on the information required by the investigator and envisaged and planned ahead of time.

2.7. Ethical Considerations

After the letter was written to the community pharmacies to solicit collaboration for the data collection, data collection supervisors clarified the objectives of the study to the community pharmacies. They were requested for their consent for their willingness that their community pharmacy is to be included in the study facilities as well as the pharmacist and/or the druggist to collect the data or make the interview. When the community pharmacy was not willing, the next pharmacy in the sampling frame was taken. They were told that in no part of the questionnaire the name of the community pharmacy is mentioned.

The objectives of the study were explained to all drug consumers to get their consent to participate in the interview and were told that the name of the respondent will not be mentioned nor needed for this study. They were told that it is a confidential research; responses are limited to the investigator only. Informed consent of all respondents was obtained.

3. RESULTS

3.1. Samples and sampling

There were a total of 177 formally licensed drug retail outlets (DROs) of all categories in Addis Ababa. Out of these 139 were community pharmacies and the rest were lower level drug retail outlets. A total of 24 community pharmacies were included in this study of which 17 were private, 6 public/city council and one red Cross Society community pharmacies.

Initially twenty community pharmacies were sampled, and each community pharmacy was allotted to collect/complete 85 questionnaires (60 questionnaires for actual drug users, Form A and 25 questionnaires for messengers, Form B). However, for different reasons some were not able to complete part or the whole of the given questionnaires. In this case, the next data collection site in the sampling frame was requested to complete the data collection. From the sampled community pharmacies drug consumers were selected.

A total of 1700 questionnaires were distributed (1200 for actual drug users, Form A and 500 for messengers, Form B, described in the method section of this study). Of the total distributed questionnaires, 927 (77.3%) for actual drug users and 434 (86.8%) for messengers were filled and collected while 14, 0.8% i.e., 9 from questionnaire Form A and 5 From B were found to be incomplete and/or excluded from the data entry upon cleaning. Some were excluded because such as interview of health care providers, clients coming for oral contraceptive use etc.

3.2. Socio-demographic characteristics

3.2.1 Age and gender

Upon categorization of respondents into actual drug users and messengers, age category showed that 1.8% of the actual drug users and 9.9% of the messengers were 12 years of age and below, and 3.1% of the actual drug users and 2.1% of the messengers were above 64 years of age; and the mean age for actual drug users was 33.9 years and for messengers 25.9 years (with mean difference of 8 years, messengers being younger; and minimum age of 8 and maximum age of 86 years old). And 95.1% of the actual drug users and 87.9% of the messengers were between the ages of 13-64 years. The proportion of the interviewee as regards sex was a 33.4% female and 66.6% male with mean age of 30.6 and 35.7 years, respectively. The results are presented on Table 3.1 below.

Table 3.1: Socio-demographic characteristics of respondents

No	Characteristics	Actual Drug Users (n= 918)		Messengers (n= 429)	
		Frequency	%	Frequency	%
1	Age:				
	Less than 13	16	1.8	42	9.9
	13 to 64	861	95.1	372	87.9
	Greater than 64	28	3.1	9	2.1
	Mean age	33.9		25.9	
	Total	905		423	100.0
2	Sex:				
	Female	301	33.4	178	42.4
	Male	600	66.6	242	57.6
	Total	901	100.0	420	100.0
3	Marital status:				
	Single	453	49.8	311	73.5

	Married	420	46.2	99	23.4
	Divorced	13	1.4	5	1.2
	Widowed	15	1.7	4	0.9
	Separated	8	0.9	4	0.9
	Total	909	100.0	423	100.0
4	Family status				
	Father	295	34.7	69	16.8
	Mother	156	18.4	47	11.5
	Son/daughter	281	33.1	231	56.3
	Other member of the family	49	5.8	32	7.8
	Others include	69	8.1	31	7.6
	Total	850	100.0	410	100.0
5	Educational level:				
	Illiterate	44	4.8	23	5.4
	Read and write	66	7.2	23	5.4
	Primary School	140	15.4	100	23.4
	Secondary School	397	43.6	206	48.2
	College and above	264	29.0	75	17.6
	Total	911	100.0	427	100.0
6	Occupation:				
	Student	149	16.8	158	37.7
	Government employee	222	25.1	53	12.6
	Self employed	177	20.0	69	16.5
	Employed by private business	199	22.5	63	15.0
	Unemployed	138	15.6	76	18.1
	Total	885	100	419	100.0

7	Average monthly income:				
	Less than 250	140	24.8	53	30.5
	250 to 500	172	30.4	55	31.6
	501 to 1000	166	29.4	48	27.6
	Greater than 1001	87	15.4	18	10.3
8	Average drug expenditure for 6 months				
	Less than 10 Birr	80		-	
	10 to 20 Birr	127		-	
	20 to 50 Birr	146		-	
	Grater than 51 Birr	205		-	
9	Religion:				
	Christian, Orthodox	665	73.1	317	74.2
	Christian, Protestant	110	12.1	48	11.2
	Muslim	104	11.4	55	12.9
	Christian, Catholic	15	1.6	6	1.4
	Others	16	1.8	1	0.2
	Total	910	100.0	427	100.0
10	Condition of the drug consumer:				
	Pregnant	11	3.5	4	2.2
	Breast-feeding	12	3.8	10	5.4
	Has chronic diseases	157	50.2	75	40.5
	Under 12 years of age	38	12.1	42	22.7
	Over 65 years	95	30.4	54	29.2
	Total	313	100.0	185	100.0

Knowing who purchases drugs is important because the ultimate use of the drug depends on the understanding and knowledge of the messenger who purchases drugs. That is why two types of questionnaires, one of which is for messengers were prepared and administered.

3.2.2 Educational level and occupation

Further analysis of the respondents based on their educational level showed that 4.8% of the actual drug users and 5.4% of the messengers were illiterate. And 22.8% of actual drug users and 18.8% of messengers either read and write, or had primary level education and 72.6% and 65.8% were found to have secondary level, and college and above level of education, respectively (Table 3.1). Analysis of interviewee also showed that 16.8% of the actual drug users and 37.7% of the messengers were students. And 67.6% of the actual drug users and 44.1% of the messengers were either government employees, employees of private business or self-employed. But the rest, 15.6% of actual drug users and 18.1% of the messengers were unemployed (Table 3.1).

3.2.3 Marital and family status

Of the total of the actual drug users, 49.8% and of the messengers, 73.5% were single/unmarried and 46.2% and 23.9% were married, respectively. The rest were divorced, widowed or separated (Table 3.1).

Studying the respondents by their status in the family showed that 34.7% were fathers and 18.4% mothers for actual drug users and 16.8% fathers and 11.5% mothers for messengers. That is more than 50% of actual drug users and 30% of the messengers were either fathers or mothers. But this situation is reversed for sons or daughters, 33.1% of the actual drug users and 56.3% of the messengers were either sons or daughters. Of the total respondents, 86.8%

were Christians (more than 73% Orthodox) and around 12% Muslims (Table 3.1).

3.2.4 Average income and drug expenditure

Average income of respondents was: 668 Birr per month for actual drug users and 633 for messengers. Average drug expenditure for actual drug users was 108 and for messengers 132 Birr over the last six months.

3.2. Self-medication practices

3.3.1 Self-diagnosis and illnesses

Actual drug user respondents were asked to mention illnesses or symptoms of illnesses that prompted them for that self-medication. Accordingly, the frequently reported illnesses were, 25.1% GI, 24.9% headache/fever, 21.4% respiratory, 8.4% skin, 7.1 eye, 2.6% STDs, and all other illnesses 10.5% (Figure 3.1).

Concerning the duration of the reported illnesses; 32.8% were illnesses of less than 24 hours duration, 44.8% 1-7 days duration, 8.4% 1-4 weeks duration and 14.0% 5 or more weeks duration (Figure 3.2).

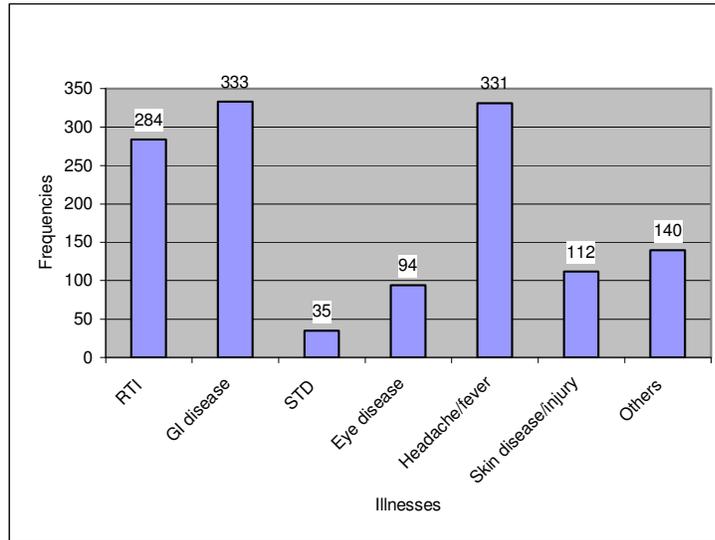


Figure 3.1: Frequently Reported Illnesses by Actual Drug Consumers

Respondents were investigated on why they resort to self-diagnosis and self-medication? They provided reasons as follows: 36.6% of the respondents believed that the disease was not serious; 19.8% of them believed that it was an emergency care; 18.2% of the respondents have had prior experience to the illness and/or the drug; 12.6% of the respondents were of the opinion that it is less expensive in terms of time and money; 11.2% assumed prevention of known or unknown illness/symptoms of illnesses (Figure 3.3)

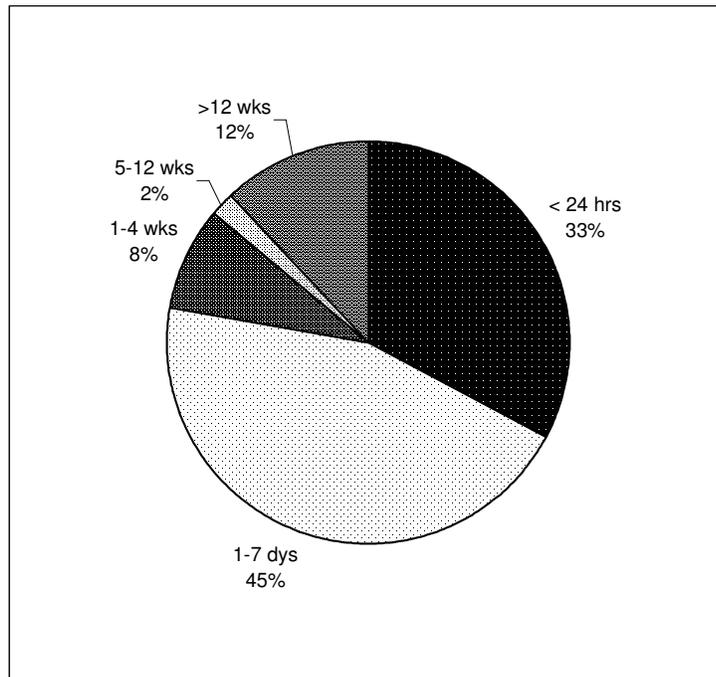


Figure 3.2: Response of Interviewee on the Duration of Illnesses Prior to self-medication

3.3.2 Types of requests for self-medication

Following the reasons for self-medication, interviewee were asked or observed on the types of drug requests. That is, how do drug consumers request drugs from the community pharmacies for self-medication? Accordingly, 58.1% of the drug consumers requested drugs by mentioning the specific name of the drug or drug product, which can be generic or brand. Interestingly, there are some familiar names of brand drug products that dominate over others. And 8.5% of the respondents requested drugs by mentioning the category of the drug to which it belongs. Twenty one percent of the drug consumers told their symptoms to the person on the other side of the counter, which can either be a pharmacist/pharmacy professional or non-professional (Figure 3.4). These categories of drug consumers/patients lend themselves to the

care of the “pharmacist” in the community pharmacy. It is at this time that the pharmacy professionals have to demonstrate their abilities and expertise of drugs and their role as drug use educators and counsellors. The rest, 10.9% were requesting drugs by showing an old sample or package of the drug product by presenting a piece of paper and by describing the physical characteristics such as the colour and/or shape of the drug product (Figure 3.4).

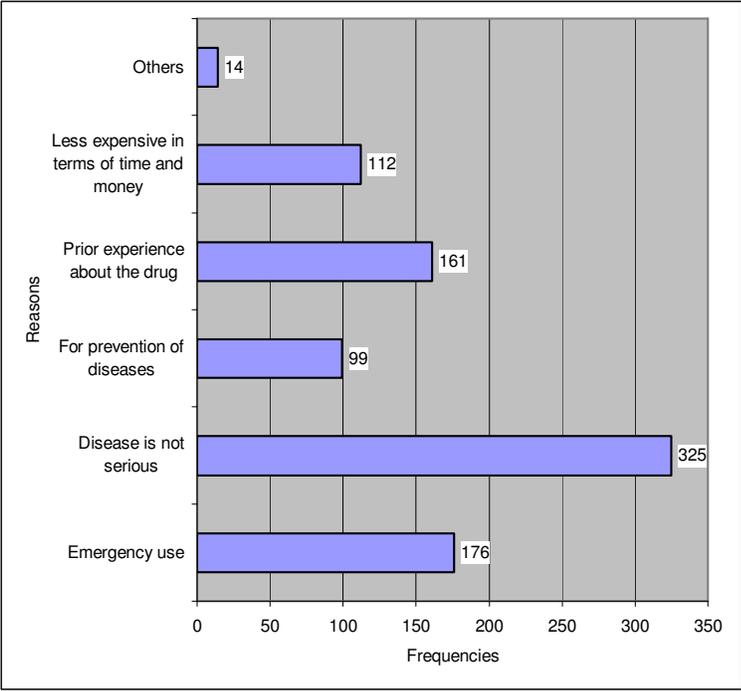


Figure 3.3: Reasons for Self-diagnosis and Self-medication by the Actual Drug Consumers

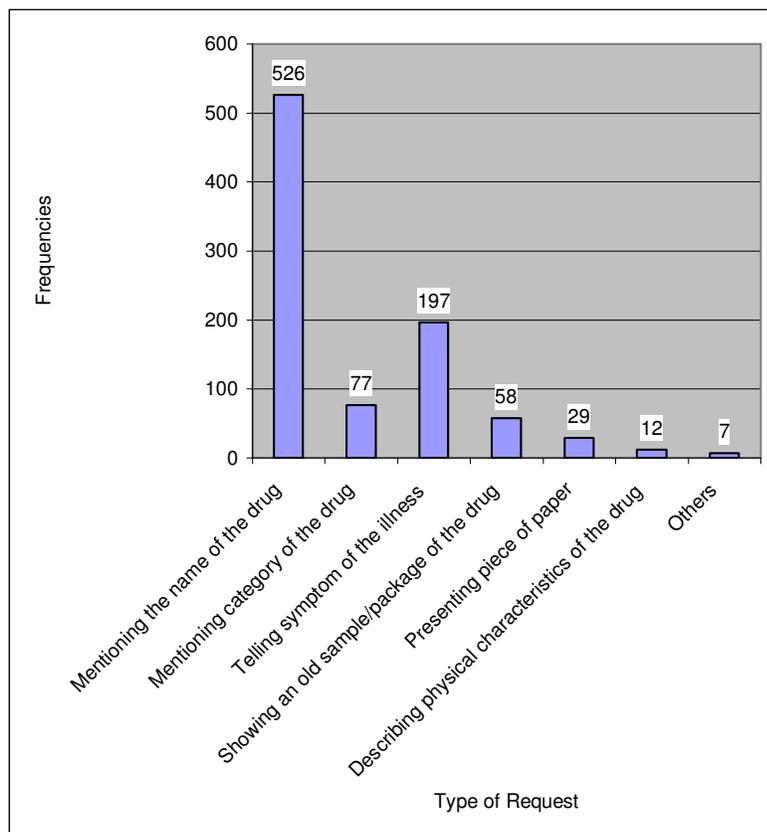


Figure 3.4: Types of Requests for Self-medication of Actual Drug Consumers

3.3.3 Drugs requested

The next assessment made on actual drug consumers was, the category of drugs requested. Accordingly, the most frequently requested category of drugs were 33.1% analgesics/antipyretics, 26.4% antimicrobials, 17.7% GI drugs, 9.7% respiratory drugs and 3.0% vitamins and ORS (Figure 3.5). Further assessment of knowledge of the respondents on specific drug request showed that more than 90% of the respondents knew the name and usage of the drugs requested.

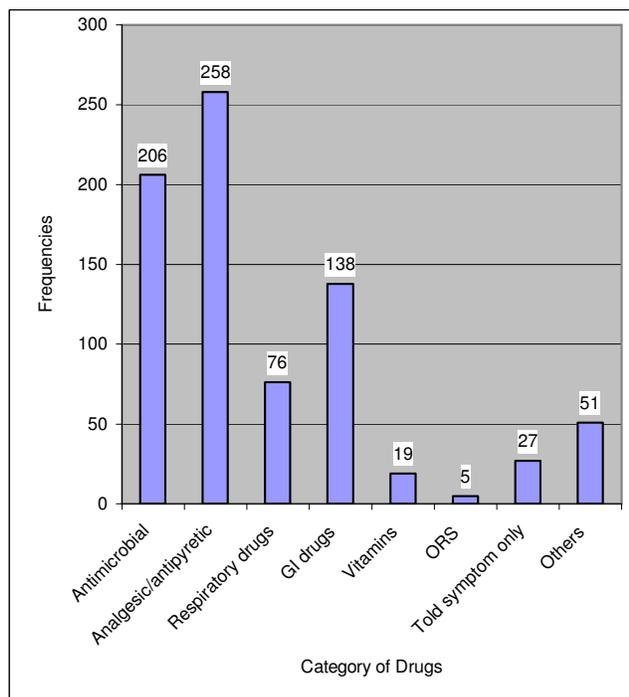


Figure 3.5: Frequently requested category of drugs for self-medication

3.3.4 Source of advice/information

Drug consumers were asked as to their source of advice/information for self-medication. The results revealed that 39.0% obtained advice of the health care providers such as physicians, nurses and health assistants but without formal prescription. But 23.5% of the drug consumers were advised by friends, relatives or neighbours, etc who have no health background. The third (15.4%) sources of advice were recommendations of the pharmacist or those working in the pharmacy and the fourth around 20.0% of them received no advice but had information on the drug before or read label, leaflet or promotional materials (Figure 3.6).

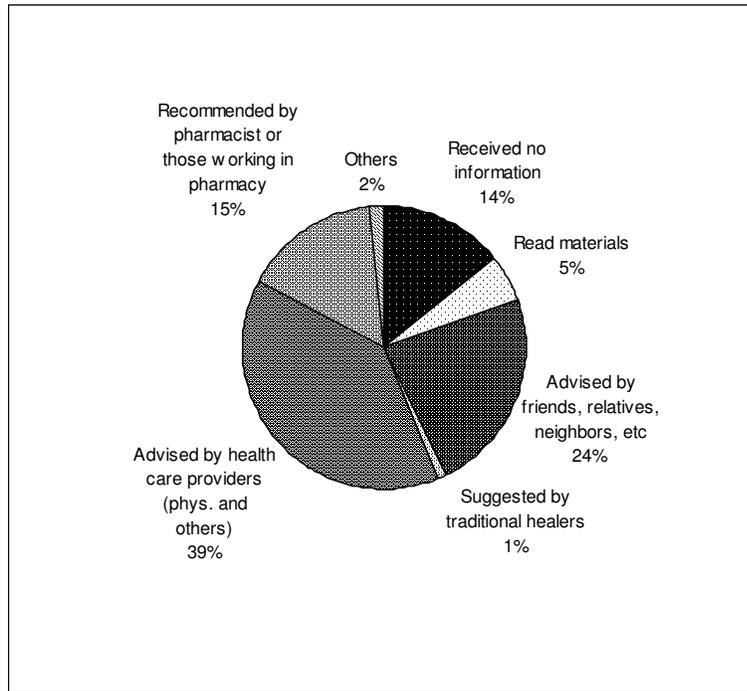


Figure 3.6: Sources of Advice for Self-medication for Actual Drug Consumers

Interviewees were asked as to whether they have had other sources of care before the current self-medication. Accordingly, 37.8% have had care before of which 33.9% were prior self-medication, 16.1% holy water and 9.7% had visited traditional medical practitioners (Table 3.2).

To study concomitant drug use, respondents were asked whether they were taking other drugs at that particular time. It was found that 28.2% were taking other drugs than requested for self-medication at that time, prescribed or self-medicated of which 37.4% were drugs being taken prior to self-medication. They were also asked to mention the name of the drugs, if they could recall. It was found that all ranges of drugs were consumed.

Table 3.2: Sources of care before the current self-medication of the actual drug consumers

	Sources of care	Frequency	Percent
1	Public health facility	113	19.8
2	Private	127	22.2
3	Self-medication	194	33.9
4	Holy water	76	13.3
5	Traditional medical practitioners	46	8.0
6	Others sources of care	16	2.8
	Total	572	100.0

Another way to show the extent or frequency of self-medication was to ask how many times the respondents visited a community pharmacy to purchase drugs for her/himself or for others over six months period. Around 30.0% had visited a community pharmacy more than five times, and around 50% between two and five times over a six months period (Figure 3.7).

Respondents were asked whether they had self-medication and as to the outcome of that treatment. Forty seven percent of them said that they were cured, 33.3% claimed improved situation and 5.3% said they were neither cured nor their situation improved (Table 3.3).

Interviewees were requested to freely comment about self-medication. The open responses were coded as follows: 36.7% of respondents perceived that self-medication was not good; 29.4% of them believed that self-medication should be for non-serious, known or chronic illnesses; 13.2% said that self-medication is useful only after consulting health care providers of any category; and 13.4% of them said that they chose self-medication because it saves their

time and money (Table 3.4).

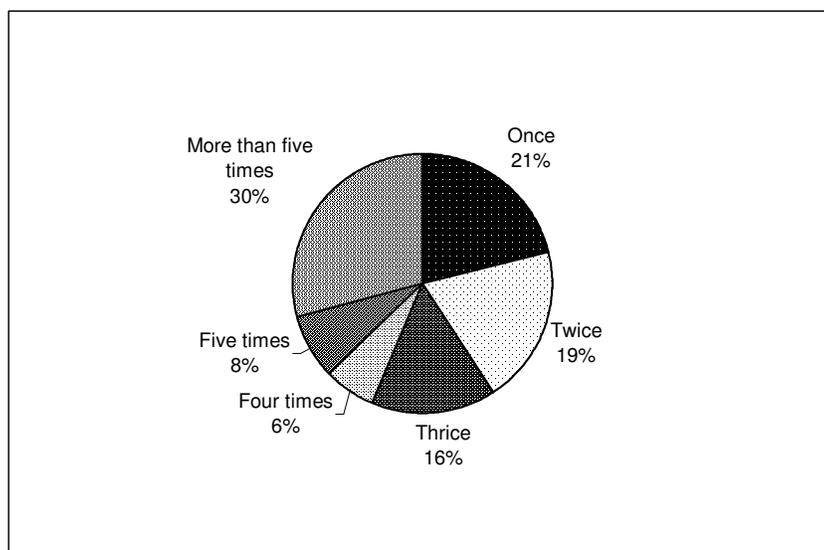


Figure 3.7: Frequency of Visit by Actual Drug Consumers of Community Pharmacies over Six-months Period

Table 3.3: Outcomes of prior self-medication of actual drug consumers

	Outcome of previous self-medication	Frequency	Percent
1	Cured	98	47.3
2	Improved	69	33.3
3	Has not cured nor improved	11	5.3
4	Other responses	4	1.9
5	Total	182	100.0

Table 3.4: Actual drug consumers comments about self-medication

Comments on self-medication		Response	
Self-medication:		Frequency	Percent
1	Is not good	159	36.7
2	Only after consulting health care providers	57	13.2
3	Only for non-serious, known and chronic diseases	127	29.4
4	Only for anti-pains	3	0.7
5	Saves time and money	58	13.4
6	Others	29	6.7
Total		433	100.0

3.4. Consumers drug knowledge

3.4.1 Commonly recalled drugs

Actual drug consumers and messengers were asked to mention the top five commonly known/used drugs. A total of 174 different generic/brand drugs or categories of drugs were mentioned by actual drug users and 101 drugs by messengers. From those mentioned drugs, the top 15 frequently known/used drugs were identified and tabulated by their generic name or category irrespective of their brand names. Accordingly, among the top 15 frequently known/used drugs by actual drug users six of them were antimicrobials, Ampicillin 18.8%, Tetracycline 14.1%, Metronidazole 4.7%, Amoxicillin 3.2%, Cotrimoxazole 2.6% (frequently mentioned by its brand name Bacterium) and Chloramphenicol 1.3%; and three were antihelmentics, Mebendazole 4.7% (frequently mentioned by its brand name Vermox), Levamisole 3.7% (frequently mentioned by its brand name Ketrax), Niclosamide 3.7% (frequently mentioned by its brand name Kossopharm). And the rest were three analgesics, Paracetamol, ASA and dipyron, cough syrups (frequently called Berantin); antacids products, and methyldopa. Similar pattern was observed for messengers, except change in their rank within the top 15 drugs (Table 3.5).

Interviewees were also asked whether they have the understanding of the common drug interactions. More than 50% of the respondents of actual drug users and messengers were having the understanding that drugs may interact with other drugs, alcoholic drinks and some foods but most of them were unable to give examples. Drug consumers were also asked whether they know that some drugs cannot be given to children, pregnant or breastfeeding mothers and to patients with chronic diseases the results are shown in Table 3.6. Respondents were also assessed as to their knowledge of dosage forms that is whether they knew that the

same drug could be given by different routes. Of the total respondents around 70% of both actual drugs users and messengers were found to know the presence of different dosage forms of the same drug.

Table 3.5: Frequently known drugs by drug consumers

No	Frequently Known	F	(%)	No	Frequently Known	F	(%)
Drugs by: Actual drug users				Drugs by: Messengers			
1	Paracetamol	592	18.8%	1	Paracetamol	295	13.0%
2	Ampicillin	444	14.1%	2	Ampicillin	195	8.6%
3	Tetracycline	206	6.6%	3	Tetracycline	74	3.3%
4	Mebendazole	148	4.7%	4	Levamisole	66	2.9%
5	Dipyron	130	4.1%	5	Acetylsalicylic acid	52	2.3%
6	Cough syrups	130	4.1%	6	Dipyron	51	2.2%
7	Metronidazole	127	4.0%	7	Metronidazole	49	2.2%
8	ASA	127	4.0%	8	Cough syrups	12	0.5%
9	Levamisole	116	3.7%	9	Amoxicillin	33	1.5%
10	Niclosamide	115	3.7%	10	Antacid preparation	32	1.4%
11	Amoxicillin	99	3.2%	11	Cotrimoxazole	27	1.2%
12	Antacid products	95	3.0%	12	Niclosamide	21	0.9%
13	Cotrimoxazole	83	2.6%	13	Dichlorophen	16	0.7%
14	Methyldopa	45	1.4%	14	Chloramphenicol	12	0.5%
15	Chloramphenicol	42	1.3%	15	Cimetidine	9	0.4%
Total		3142	100.0%	Total		2272	100.0%

3.4.3 Adherence to advice

Drug consumers were also asked whether they discontinue taking drugs before the last date advised by the health care provider. It was found that nearly 30% of the actual drug consumers did discontinue taking drugs before the date advised by the health care provider. The top four frequently reported reasons for discontinuing drugs before the date advised were: they discontinue when illness is relieved, when they believe that the drug does not work, when side effects create problems to them and to save the drug for later use (Table 3.8).

Table 3.6: Knowledge of drug interactions of drug consumers

No	Type of interaction	Response: frequency (%)			
		Actual drug users		Messengers	
		Yes (%)	No (%)	Yes (%)	No (%)
1	Drug with drug	464 (53.4)	405 (46.6)	185 (44.7)	229 (55.3)
2	Drug with alcohol	781(87.4)	113 (12.6)	352 (83.0)	72 (17.0)
3	Drug with some food	514 (58.8)	360 (41.2)	214 (51.3)	203 (48.7)
4	Cannot be given to children	651 (76.1)	205 (23.9)	272 (65.7)	142 (34.3)
5	Cannot be given to pregnant & breast-feeding	530 (61.5)	332 (38.5)	226 (54.9)	186 (45.1)
6	Cannot be taken by people with chronic diseases	373 (44.4)	467 (55.6)	160 (38.9)	251 (61.1)

3.4.2 Dosage form preferences

The frequent empirically encountered situation is dosage form preferences and the reasons for

the choice by the drug consumers. More than 96% of all the respondents preferred one or the other dosage form. The top two preferred dosage forms were injections 33.7% and tablets 33.3% for messengers and tablets 36.7% and injections 28.9% for actual drug users (Figure 3.8).

The reasons given by respondents for their preferences of one or the other dosage forms were grouped into 10. The top 3 reasons for drug dosage form preferences of actual drug users were:

- Convenience to administer/take/handle or store, 37.1% of the respondents for preferring tablets and capsules;
- It cures or acts quickly, 23.6% and
- Will not affect GI tract, 8.8% of respondents for preference of injections.

The two top reasons for preferring dosage forms by the messengers are the same as for actual drug users mentioned above but the third reason for not preferring of oral dosage forms is fear of injections 15.6% of the respondents (Table 3.7).

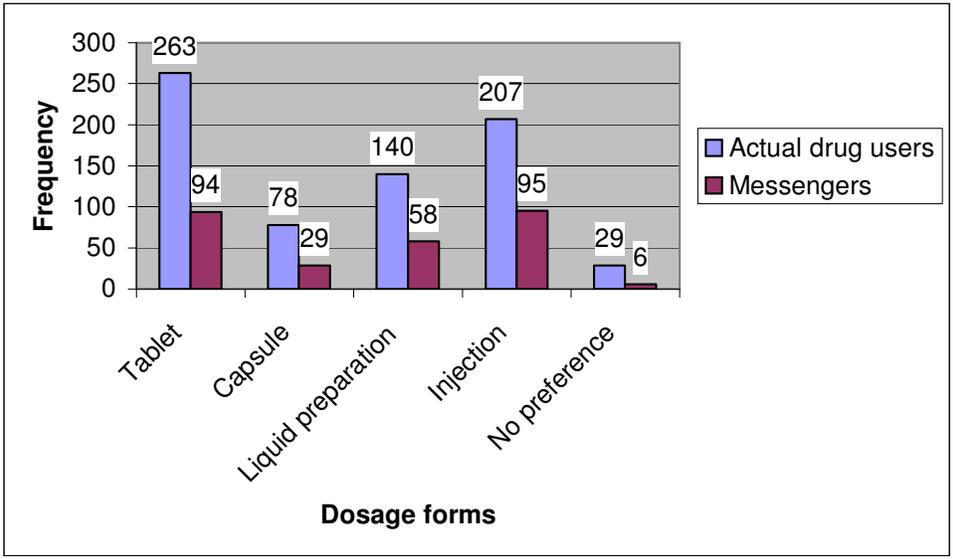


Figure 3.8: Dosage Form Preferences of Drug Consumers

Table 3.7: Reasons given by respondents for preference of dosage forms

Reasons	Response: frequency (%)			
	Actual drug user		Messengers	
	Frequency	(%)	Frequency	(%)
1 Will not affect GI	53	8.8	22	8.4
2 Cures or acts quickly	142	23.6	61	23.3
3 Bad tastes are masked	23	3.8	16	6.1
4 Not to forget taking	9	1.5	3	1.1
5 Difficulty of swallowing	2	0.3	2	0.8
6 Problem of infection	10	1.7	1	0.4
7 Problem of pain	22	3.7	5	1.9
8 Convenient to manage (administer, take, handle, store)	224	37.1	90	34.4
9 Fear of injections	64	10.6	41	15.6
10 Other reasons	50	8.7	16	6.1
Total	602	100.0	262	100.0

Table 3.8: The frequent reasons for discontinuation of drugs before the date advised by the health care provider

Reasons for discontinuation	Actual drug consumers		Messengers	
	Frequency	(%)	Frequency	(%)
1 Illness relieved	196	50.4%	86	54.8%
2 Drug not working	65	16.7%	23	14.6%
3 Side effects create problems	80	20.6%	30	19.1%
4 To save for later use	41	10.5%	15	9.6%
5 Other reasons	7	1.8%	3	1.9%
Total	389	100.0%	157	100.0%

Drug consumers were asked what would they do if they forget a dose of a drug and remember it immediately. Less than half (45.6%) of the actual drug users and 34.8% of the messengers responded that they would take it as soon as remembered and continue the rest as scheduled before. The rest of the respondents replied otherwise (Table 3.9). Respondents were also asked as to how they store drugs at home the results are presented in Table 3.10 above.

Respondents were asked whether they fast drugs too as they do for food. It was found that 13.8% of actual drug users and 16.6% of the messengers discontinue taking drugs during fasting period. The reasons given for fasting were grouped into five. The first and frequent reason was religious 60.0% of actual drug users and 58.3% of the messengers believed that drugs couldn't be taken on an empty stomach (Table 3.11).

Table 3.9: Actions taken by respondents after forgetting a dose of a drug and immediate recall

Action	Actual drug consumers		Messengers	
	Frequency	%	Frequency	%
1 Taking as soon as remembered	410	45.6	146	34.8
2 Double the next dose	65	7.2	48	11.5
3 Leave the missed dose	363	40.3	183	43.7
4 Other actions	62	6.9	42	10.0
Total	900	100.0	419	100.0

Table 3.10: Percent of respondents who have Knowledge on how to store drugs at home

Storage place and response (Yes or No)	Actual drug users		Messengers	
	Frequency (%)	Total	Frequency (%)	Total
1 Out of the reach of children, Yes	771 (97.5)	791	348 (96.7)	360
2 All drugs in the kitchen/bathroom, No	30 (6.2)	482	229 (93.1)	246
3 All drugs in the refrigerator, No	427 (85.2)	501	219 (84.6)	259
4 All drugs in one place but separated, No	606 (86.8)	698	269 (81.5)	330
5 Other places	72	72	49	49

Table 3.11: Frequent reasons for discontinuing drugs during fasting

Reasons	Actual drug users:	Messengers
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	Frequency (%)	Frequency (%)
1 Religious reason	51 (60.0)	5 (10.4)
2 Drugs cannot be taken on an empty stomach	15 (17.6)	28 (58.3)
3 Shifting the dose to non-fasting period	11 (12.9)	5 (10.4)
4 When the disease is not serious	7 (8.2)	2 (4.2)
5 When side effects create problems	1(1.2)	8 (16.2)
Total	85 (100.0)	48 (100.0)

3.4.4 Knowledge on drugs

One form of self-medication is sharing of drugs among drug consumers. According to this study, more than a quarter of the drug consumers do share any drug they have with their relatives, friends and neighbours, etc. The frequently mentioned reasons for sharing were: sharing of drugs for common, known and non-serious illnesses; sharing of analgesics and antacids only, sharing when not accessible due to geographic or economic reason; sharing drugs thinking that the drugs will not harm, and for emergency situations (Table 3.12).

In this study, consumer's drug knowledge was also indirectly assessed. Respondents were asked whether they concomitantly take alcoholic drinks while they are taking drugs. More than 90% of them responded that they do not take alcohol while taking drugs. However, only less than 25% of the respondents knew the differences between antimicrobials and analgesics. Interviewees were asked whether they check expiry date of drugs while purchasing or taking drugs. It was found that less than 40% of the respondents do not check expiry dates of drugs at any time (Table 3.13).

Table 3.12: The frequent reasons for sharing of drugs

Reasons for sharing drugs	Actual drug users:	Messengers:
	Frequency (%)	Frequency (%)
1 Sharing for common, known and non-serious illnesses	104 (48.6)	39 (39.0)
2 Sharing analgesics and antacids only	65 (30.4)	39 (39.0)
3 Sharing due of lack of access and do not want HCPs	20 (9.3)	5 (5.0)
4 Sharing for economic reasons	15 (7.0)	15 (15.0)
5 Sharing because it has no problem	5 (2.3)	2 (2.0)
6 Sharing for emergency use	5 (2.3)	4 (4.0)
Total	214	100 (100.0)

Table 3.13: Self-medication practices/consumers drug knowledge on drugs

No	Knowledge	Response: frequency (%)			
		Actual drug users		Messengers	
		Yes (%)	No (%)	Yes (%)	No (%)
1	Discontinue taking drugs during fasting	124 (13.8)	775 (86.2)	69 (16.5)	350 (83.5)
2	Taking drugs with alcohol	59(6.5)	853(93.5)	26 (6.1)	399 (93.9)
3	Sharing of drugs	251(27.9)	650(72.1)	116 (27.5)	306 (72.5)
4	Checking of expiry dates before taking	624 (68.6)	286 (31.4)	267 (62.7)	159 (37.3)
5	Know the difference between antimicrobial/analgesic	208 (23.6)	672 (76.4)	84 (20.6)	323 (79.4)
6	Discontinue taking drugs before the date advised by HCP	263 (29.4)	632 (70.6)	120 (28.4)	302 (71.6)

Finally, interviewees were requested to freely tell their experience about drugs. The frequent comments given are grouped as:

- Drugs are important to prevent, relieve and cure illnesses if properly used and chronic use of drugs is dangerous.
- Drugs should be used with proper diagnosis and prescription.
- Quality of drugs is related to the brand and country of origin of the drugs.
- The public does not have adequate knowledge of drugs so pharmacists should provide

proper counselling and advice.

- Other comments mentioned include: drugs are not important for self-medication, home remedy is better and traditional medicine is better, etc, (Table 3.14).

Table 3.14: Information provided about drugs by respondents

No	Information	Response: frequency (%)	
		Actual drug users	Messengers
		Frequency (%)	Frequency (%)
1	Drugs are important	115 (57.2)	56 (56.6%)
2	Drugs should be used with proper diagnosis and prescription	28 (13.9)	18 (18.2%)
3	Drug quality is related to brand	9 (4.5)	9 (9.1)
4	The public does not have adequate knowledge on drugs and need advice of health care providers	8 (4.0)	13 (13.1)
5	All others	41 (20.4)	3 (3.0)

3.5. Cross tabulations

3.5.1 Illnesses and other variables

Cross tabulation of the frequently reported illnesses/symptoms of illnesses that prompts self-medication versus duration of illnesses was done (Table 3.15). The data showed that on the average more than 20% of the respondents had less than 24 hours of duration of illness (11.0% of RTI, 29.1% of GI, 14.7% STDs, 16.0% of eye, 47.4% of headache/fever and 43.9% of skin illnesses). And more than 50% of the respondents were having less than 7 days

duration of illness (i.e. 90.5% headache/fever cases, 84.6% cases of skin disease/injury, 81.9% of GI illnesses, 76.5% of STDs, 73.6% of eye diseases and 35.0% of RTI cases). The rest of the respondents on the average (11.2%) were having more than one-week duration of illness, the highest, and 23.5% of the respondents being STDs.

Table 3.15: Illnesses/symptoms of illnesses that prompt self-medication versus duration of illnesses for actual drug users

No	Illness/symptom of illness	Total	Duration of illness									
			< 24 hrs		1-7 days		1-4 weeks		5-12 weeks		>12 weeks	
			F	%	F	%	F	%	F	%	F	%
1	RTI	672	74	11.0	161	24.0	25	3.7	6	0.9	17	2.5
2	GI disease	326	95	29.1	172	52.8	35	10.7	4	1.2	20	6.1
3	STDs	34	5	14.7	21	61.8	6	17.6	2	5.9	0	0.0
4	Eye disease	92	29	16.0	53	57.6	5	5.4	0	0.0	5	5.4
5	Headache/fever	327	155	47.4	141	43.1	20	6.1	2	0.6	9	2.6
6	Skin disease/injury	108	30	43.9	44	40.7	12	11.1	8	7.4	14	13.0
Total		1699	388	22.8	592	34.8	103	6.1	22	1.3	65	3.8

Illness type vs. Duration of illness	p value	Chi Square
RTI	0.03206571	10.55
STDs	0.02001942	11.67

Headache/fever	0.00203628	16.88
Skin	0.00496978	14.87

On the other hand, cross-tabulation of sources of information/advice versus illness /symptoms of illness revealed that the most frequent sources of information were advice of HCPs, followed by advice by friends, for all illnesses or symptoms of illness except for STDs. It was reversed in the later case (i.e. advise by friends ... was the first for STDs). And recommendation by pharmacists or assistants working in the pharmacy is the third source of information/advice for all except GI illnesses. Interestingly, the first frequent source of advice/information for diagnosis of STDs was advice of friends and relatives (Table 3.16).

Analyses were also made of actual drug consumers by the type of illnesses reported and the frequently requested category of drugs. Request of drugs by telling the symptom of her/his illnesses and request for ORS were low. But overall request for antimicrobials and analgesics were common for all illnesses or symptoms of illnesses; results are shown in Table 3.17 below.

Table 3.16: Source of information/advice and the frequently encountered category of illnesses

	Source of information/advice	Frequently encountered category of illnesses (%)				
		RTI	GI	STD	EYE	HEAD
1	Received no information (respondent knows)	33 (11.7)	44 (13.4)	6 (17.1)	8 (8.5)	33 (10.0)
2	Read information materials	14 (5.0)	18 (5.5)	3 (8.6)	3 (3.2)	18 (5.5)
3	Advised by friends, family and neighbours	60 (21.3)	75 (22.8)	13 (37.1)	23 (29.9)	77 (23.4)
4	Suggested by traditional healers	5 (1.8)	5 (1.5)	1 (2.9)	1 (1.1)	3 (0.9)
5	Advised by doctors, nurses & other health workers without prescription	112 (39.7)	120 (36.5)	10 (28.6)	45 (47.9)	139 (42.2)
6	Recommended by pharmacists and those working in the pharmacy	56 (19.9)	62 (18.8)	2 (5.7)	14 (14.9)	56 (17.0)
7	All others	2 (0.7)	5 (1.5)	0 (0.0)	0 (0.0)	3 (0.9)
	Total	282 (100.0)	329 (100.0)	35 (100.0)	94 (100.0)	329 (100.0)

Table 3.17: Frequently reported Illnesses and the corresponding requested category of drugs for actual drug consumers

Illnesses/symptoms of illnesses	Frequently requested category of drugs (%)								Total
	AB	AN	RE	GI	VT	ORS	sym*	Other	
1 RTI	72 (27.3)	77 (29.2)	75 (28.4)	15 (5.7)	6 (2.3)	0 (0.0)	11 (4.2)	5 (2.3)	264 (100.0)
2 GI	68 (23.5)	68 (23.5)	12 (4.2)	119 (41.2)	5 (1.7)	4 (1.4)	8 (2.8)	5 (1.7)	289 (100.0)
3 STDs	17 (50.0)	12 (35.3)	2 (5.9)	1 (2.9)	0 (0.0)	0 (0.0)	2 (5.9)	0 (0.0)	34 (100.0)
4 EYE	25 (31.3)	36 (45.0)	2 (2.5)	3 (3.8)	3 (3.8)	2 (2.5)	5 (6.3)	4 (5.0)	80 (100.0)
5 Headache	39 (12.6)	212 (68.9)	14 (4.5)	22 (7.1)	10 (3.2)	1 (0.3)	8 (2.6)	3 (1.0)	309 (100.0)
6 Skin	35 (38.0)	30 (32.6)	2 (2.2)	5 (5.4)	1 (1.1)	0 (0.0)	9 (9.8)	10 (10.9)	92 (100.0)

* Told symptoms only

3.5.2 Sources of advice and drugs requested

Relating the source of information/advice for self-medication with the frequently requested category of drugs, it was found that advice of the HCPs, but without prescription was the first for all category of drugs except vitamins followed by advise by friends, relatives and neighbours. Particularly, respondents told that their sources of information/advice for self-medication of antibiotics/antimicrobials were in the order that advise of the health care providers being the first followed by advise by friends, relatives and neighbours, and the third

received no information (respondents knew about the antimicrobial). Self-medications with the recommendations of the pharmacist or those working in the pharmacy were the second for respiratory drugs, gastrointestinal drugs and third for vitamins and analgesic/antipyretics (Table 3.18) (Chi square = 77.38, and p value = 0.00000000).

3.5.3 Socio-demographic characteristics and knowledge of drugs

Socio-demographic characteristics were related to knowledge of drugs of drug consumers such as discontinuation of the taking of drugs before the date advised by the health care providers; sharing of drugs; fasting of drugs as they do for food; concomitant alcohol and drug taking; knowledge of expiry dates of drugs and whether they know the differences between antibiotics and analgesics. It was found that p values were less than 0.05 for:

- Education level and discontinuation, fasting, knowledge of expiry date of drugs and knowledge of the difference between antimicrobials and analgesics;
- Gender and sharing of drugs;
- Occupation and expiry dates of drugs, knowledge of difference between antimicrobials and analgesics;
- Religion and fasting; and
- Marital status and expiry dates of drugs.

Table 3.18: Source of information/advice and the frequently consumed category of drugs by

actual drug users

Source of information/advice	Frequently consumed category of drugs (%)					Total
	AB	AN	RE	GI	VT	
1 Received no information (respondent knows)	40 (19.8)	28 (10.9)	10 (12.7)	22 (15.8)	1 (5.3)	101 (100.0)
2 Read information materials	12 (5.9)	10 (3.9)	14 (17.7)	7 (5.0)	4 (21.1)	47 (100.0)
3 Advised by friends, family neighbours	60 (29.7)	59 (23.0)	14 (17.7)	32 (23.0)	2 (10.5)	167 (100.0)
4 Suggested by traditional healers	3 (1.5)	2 (0.8)	2 (2.5)	1 (0.7)	0 (0.0)	8 (100.0)
5 Advised by doctors, nurses & other health workers without prescription	63 (31.2)	107 (41.6)	34 (43.0)	52 (37.4)	9 (47.4)	265 (100.0)
6 Recommended by pharmacists and those working in the pharmacy	18 (8.9)	47 (18.3)	14 (17.7)	24 (17.3)	3 (15.8)	106 (100.0)
7 All others	6 (3.0)	4 (1.6)	1 (1.3)	1 (0.7)	0 (0.0)	12 (100.0)
Total	202 (100.0)	257 (100.0)	79 (100.0)	139 (100.0)	19 (100.0)	696

On the other hand cross tabulation of socio-demographic characteristics vs. category of illnesses or symptoms of illnesses showed that p values were less than 0.05 for education and

GI; education and STDs, education and headache/fever and education and skin.

Socio-demographic characteristics of respondents were also related to the source of information/advice respondents sought to decide the type of drug product for self-medication. P values were 0.00000000 and Chi Square = 42.60, 42.77, 101.27, 82.30, 57.73 for age group, occupation, education, marital status and religion, respectively.

Socio-demographic characteristics were also related to the type of category of drugs requested for self-medication. It was revealed that p values were 0.00000000 and Chi Square = 44.29 and 41.88, respectively for educational level and occupation.

4. DISCUSSION

4.1. The study and study area

4.1.1 The study

In retrospective research people often cannot recall even the names of the drug they took, much less the dosage schedule or course of the treatment [126]. That is why this prospective study was designed.

In the informal system, self-medication is a frequent response to either illnesses or its prevention that may substitute the use of prescribed drugs [127]. Studies indicate [37,128-130] that potentially a large amount of resources can be freed up in the health care system if health care providers cease to prescribe products for the treatment of minor illnesses and consumers self-medicate responsibly. Self-medication is also important in regions where endemic diseases occur in large areas without adequate medical service [131].

In order to release these resources a number of events have to happen: educate drug consumers and health care providers as to the new way of treating minor ailments and drug products; increase number of drugs available without prescription; and the pharmacists will have to become much more of consultants and advisors for minor ailments and drug products and they have to fulfil these expectations in many respects.

4.1.2 Study area and Study Sites

The study area was divided into four areas in order to get representative data from the different areas of Addis Ababa population because the different areas of the city may

represent different categories of the population in terms of income, education, etc. These variables have influence on self-care including self-medication as indicated by another study [132].

The reasons for classifying drug retail outlets, community pharmacies by area, level and ownership are: the different locations of pharmacies are utilized by different segments of the population due to closeness to residence for shopping nearby [132]; differences in ownership may also imply the perceived or real association of lower price of drug consumers to drug products to the public (City Council or Red Cross Community) pharmacies. Classification of drug retail outlets by level is to keep the homogeneity of the sample as community pharmacies represent the majority, 139/177 (78.5%) of the total drug retail outlets in the study area, Addis Ababa. Kloos and others found that people in lower socio-economic groups, as defined by their education level and income, were less likely to visit a physician when experiencing physical symptoms of illnesses probably related to the ability to pay [132].

The questionnaires were of two types for actual drug users and messengers. Knowing the purchaser of drugs is important because he/she is the one who takes the advice or information from the health care provider to the patient in the case of messengers which acts as vehicle; he/she may be the care taker of the patient at home and play a key role; may be a good supervisor on how the patient follows the treatment. He/she may evaluate the outcome and progress of the treatment. Studies indicate that in many developing countries over 80% of all drugs [12] are purchased by people for themselves or for a family member without prescription [27].

Self-medication at community pharmacies was selected because this is the proper place to study knowledge of drugs and self-medication practices of drug consumers prospectively. Otherwise, either the study should be retrospective or cannot be strictly on self-medication and/or one cannot get adequate information. The community pharmacy is the place where pharmacists are most visible to the general public [31]. It is true that pharmacists and patients (or members of their families) meet face to face more frequently in the community pharmacy than elsewhere.

Often times discussions with patients centre around proper use of drug products or their prices. The difficulty or limitation to the frequent contact of the pharmacist to the community is the therapeutic and clinical judgment involved in the determination of a need for the particular drug product was in the majority of time made elsewhere, without participation of the pharmacist [31]. In community pharmacies, there is some assistance provided to patients by the pharmacist in recommending OTC products or in helping the patient decide whether to seek the consultation of other health care providers, although, in this study, the majority of drug consumers request the drugs they need by name or the category to which it belongs (Figure 3.4).

Pharmacy professionals are expected to play role in assisting and counselling drug consumers on how to manage their illnesses including management without drugs; on the proper selection of the product for presenting illness or symptom of illness; provision of drug information about its proper use, and also referral to the appropriate health care facility and health care provider.

An expanded role of the community pharmacist beyond the traditional functions of processing prescriptions and dispensing of medications had been proposed over 10 years ago. In fact it was stated that the community-based pharmacist is in a unique position to provide medication services for their patients, particularly in providing counselling on the use of prescribed and OTC medication, monitoring for ADRs and provision of drug information to their community. Evidence of benefits and acceptance of the above expanded community pharmacy service has been shown by several studies [133, 123]. As can be shown from the open-ended question results, the people expect much (Table 3.14, Figure 3.4 and Figure 3.6) from community pharmacies and pharmacists which has to be met.

In this study, non-compliance by drug consumers was indicated. Around 30% of the respondents replied that they do discontinue taking drugs before the date advised by the HCPs for different reasons (Table 3.8). Other studies indicated that greater than 50% of all drugs are taken improperly/incorrectly [134]. Counselling by pharmacists has been proved to reduce misuse, increase compliance, help patients choose the most appropriate drug, help prevent drug interactions and reactions. The growth in number of OTC drugs is providing pharmacists with an opportunity and/or challenge to expand their role/benefits [134].

4.2. Socio-demographic characteristics of respondents

4.2.1 Age and gender

Survey instruments were categorized into two types. Survey instrument for actual drug users and messengers. Knowledge on drugs of the messenger is very important because the adherence/compliance to the advice of the health care provider to the end drug user depends on the knowledge and information provided by the messenger. Respondents were categorized

into three age groups on purpose as children 12 years of age or less, elderly above 64 years and the rest (13-64 years) as the third category. This is done because children have in most cases less developed organ system and the elderly may have hampered organ to eliminate administered drugs [70]. It was indicated in other studies that children had a high rate of consultation and self-medication and the health status of older school children is not better. They were not offered adequate advice. Curative approach will only lead to a high rate of episodic consultation and self-medication without empowering the young people with the skills of self-care and self-help and positive health behaviours [4,63,135].

In addition, dispensing drugs and provision of counselling to children and the elderly need a number of cautions and special attention seldom practiced or observed. Children may consider drugs like a candy and may not be well aware of the dangers of over or under dosing, even they may be tempted to taste it behind their parents. The elderly may have impaired cognitive and hampered hearing or vision. Additional effort is needed to counsel/educate these categories of drug consumers. Although females reported to have frequent illnesses and self-medication practices in other study [12], in the current study they are only half of males.

4.2.2 Education and occupation

Respondents who were illiterate (around 5.0%) neither read the labels written on the envelope of the drug nor easily understand the orally given hasty jargon drug information. Hence these categories of drug consumers may fail to comply with the advice of the health care providers even if they are given adequate information. Even those can read and write and those who had primary level education may face similar problems of non-compliance due to not understanding or misunderstanding of the drug information. To promote proper use of drugs

by drug consumers it was indicated that the use of compliance aids such as symbolic labelling would be beneficial [62].

In counselling and advising drug consumers, educational level play a role in understanding the message being told orally or in written form on the package of the drug. Therefore, appropriate counselling and advice provided by health care providers and concordance by drug consumers (actual drug consumers) to their treatment is dependent on their educational level. Non-compliance is particularly significant when the orally communicated information and advice is full of *mesto* English language, which is not understood by illiterate group of drug consumers and when full of jargon written information can not be read or understood by all categories of drug consumers. Extra effort and skill should be made to develop and assist using compliance aids such as symbolic labelling

4.2.3 Religion and fasting

It is well known that different religions have their timing for fasting that is ordered by the dogma. For example, the Orthodox Christians have many fasting periods. The fasting time during this study was that of Wednesdays and Fridays. During their fasting period most people do not take any thing by mouth. To understand the underlying belief and practice on drug use, they were asked their religion and their concordance to their orally given treatment during the fasting period (but not asked for other routes). This survey revealed that 21.7%, Christians and 24.5% of the Muslims do not take drugs during their fasting period. Needless to say such practices will have an impact on the outcome of the treatment.

4.2.4. Pregnant and breast-feeding drug consumers

Taking drugs not prescribed by a physician is widely practiced in both developed and developing countries. However, little is known about the proportion of such drugs taken by pregnant women. In this study, around 3% of the pregnant and around 5% of breastfeeding mothers have come to request drugs for self-medication.

The pregnant or breast-feeding group of drug consumers should be identified to advise them on the implications of drug use to the unborn foetus and breast-feeding infant, respectively. Drugs that may not have significant side effects on normal adults may have serious adverse reactions to the foetus or to the infant because the metabolic pathways are not well developed. Hence, the foetus eliminates the drug that entered to the circulation through the umbilical chord during pregnancy and the infant through breast milk during breast-feeding. That is, pharmacokinetic properties of drugs are different during pregnancy and the developed organism is unique in its responsiveness to drugs. The same applies to children who may not have well developed excretory mechanism and the elderly who may have a hampered system. These facts are particularly serious during self-medication of all range of drug products as knowledge about drugs is low [70,62,68,136]. The chronically ill patients may have diminished capacity to eliminate the administered drugs or may take other drugs concomitantly which may lead to increased side effects or adverse effects and /or drug interactions.

Since the epidemics a few decades ago of foetal malformation caused by the use of thalidomide during pregnancy, great interest has been shown taken in the prevention, detection and treatment of anomalies of development: It has been found that about 3% of live born infants have congenital malformations, 7% of which are caused by intrauterine exposure

to chemicals. Of the total number of respondents, 45.4% took at least one drug that was not prescribed by a doctor, and on the advice of her family or her own initiative, 63.4% of the cases. The main drugs were: analgesics, anti-influenza, antibiotics, anti-emetics, hypnotics/sedatives and appetite suppressants: 19.7% were taken under alternative therapies and 13.9% were recommended by pharmacy staff. Teratogenic risks were identified in 6.1% of the pregnant women who took drugs not prescribed by a physician (mainly tetracycline and sex hormones with androgenic component, the latter being taken for attempted abortion [137]. Drug requests by pregnant women were not uncommon as indicated by this study (Table 3.1).

4.3. Self-diagnosis and self-medication practices

In many developing countries over 80% of all drugs are purchased by people for themselves or for family members without a prescription. Even if drugs are obtained after consultation with a health care provider, the way in which they are used will depend on the understanding and decision of the individual consumer. This means that understanding of people's attitudes to medicine is fundamental in order to improve drug use. Studies indicated that drug consumers decision are influenced by their income, by their perception of drugs value, social and cultural attitudes, surroundings, information, believes, promotion, symptoms and personal characters [138].

4.3.1 Self-medication of antimicrobials

In the present study, 2.6% of the respondents were seeking self-medication of which 50.1% were antimicrobials for STDs. In reality, the common pathogens of STDs are multi-drug resistant as reported for Addis Ababa [139]. One of the health education messages given in STDs control is patients' adopting appropriate health seeking behaviour, including reporting

to health care facilities [92,140]. Self-medication for the STDs will further worsen the disease of that particular patient and increase the drug resistant pattern of organisms. Some respondents having STDs were asked why they resorted to self-medication instead of going to health care facility such as a hospital and health centres. They responded that they don't want to show their disease. This seems simple but it indicates that the drug consumers have a confidence on and closer relationship to pharmacy professionals working in the community pharmacies. Thus, this opportunity of having the confidence of the client on the professionals is a critical success factor to teach drug consumers on the appropriate use of drugs and maintain that relationship, even without losing the benefit that the pharmacist expects to get. There are studies showing trustworthiness of the pharmacist in other countries [127]. Self-medication is often cited as a factor fostering drug resistant pathogens but is only one factor. Over prescription and genetic transfer of information between pathogenic species affects rate of resistance as well [12].

Of the total respondents that reported headache/fever 12.6%, respiratory 27.3% and GI disorders 23.5% were requesting antimicrobials for self-medication (Table 3.17). But these groups of illnesses or symptoms of illnesses are usually amenable to simple home remedy and some OTC drugs. Other studies indicated that among the lowest income group there was up to 47% of self-medication; and that 46% of all the drugs used for self-medication were antibiotics [27]. However, RTI usually are viral in origin subsiding spontaneously without antimicrobials. This requires close follow-up and symptomatic treatment. And antimicrobials are indicated if concomitant circumstances arise and in specific clinical situations [81,92, 140,141].

When antibiotics are used correctly, they are among the most important drugs. When they are overused or inappropriately used, however, they contribute to a troublesome, increasingly worrisome problem in patient care: the development of antimicrobial resistant pathogens [85,142].

On the one hand, the high number of requests of antimicrobial drugs by the respondents for self-medication is beyond justification. On the other, despite the frequent occurrence of childhood diarrhoea, 21.1% for Addis Ababa (44.5% at national level) [143] and manageability of this illness at home, the number of requests for ORS was insignificant, only 0.6% of the requests.

4.3.2 Types of drug requests

As regards, the type of drug requests of drug consumers, 58.1% of them do request drugs by their name, sometimes by brand name of the drug. This indicates that the drug consumer has made up his/her mind leaving no room for discussion on diagnosis and choice of drug for that particular illness by the health care provider. Much effort is required to advise/counsel as 10.9% of the respondents/drug consumers requested drugs by showing an old sample or package or piece of paper.

The rest of the drug consumers are those who request the advice of the dispenser and also test the expertise of the person on the other side of the counter of his ability to diagnose minor illnesses and select appropriate drugs. It is here that the professionals should capitalize to show their expertise and potential. It should be noted that a drug consumer who comes to the community pharmacy with a piece of paper on which the name of the drug is written is not formal prescription. The prescriber was not also known. Any person who knows the names of

drugs or any support staff working in health facilities might have provided such "prescriptions" as tested by fieldwork.

Respondents told that they requested that specific drug because previously their physician prescribed that drug for similar illness. Pharmacists can play a role to advise their patients [127] by saying "even if the symptoms of their illness are similar the underlying cause/disease may be different and require a different form of treatment".

4.3.3 Frequently requested category of drugs

The most frequently requested category of drugs in this study were analgesics/antipyretics and antimicrobials. Similar consumption by value pattern was observed by another study [22]. The perceived severity of a disorder seemed to influence the choice of therapy. Analgesics were extremely popular for non-severe respiratory disorders, often taken three times daily for several days in succession, seemed to regard analgesics as having curative properties. There is not any argument against the use of analgesics/antipyretics on self-medication provided they are given with proper advice and not taken as treatment continuously as evidenced by other studies [144].

A study done elsewhere indicated that drugs which have a high incidence of side effects or a significant risk of fatal idiosyncrasy are being utilized as OTC and prescribed by a doctor for trivial complaints. The same study estimated that 5000 to 10,000 people are dying from chloramphenicol-induced aplastic anaemia in India every year [144].

A "more is better" philosophy also leads some consumers to utilize multiple medications to

treat primary conditions, associated symptoms or side effects related to an initial treatment. Elderly individuals are particularly prone to this form of polypharmacy and become accustomed to a state of chemically induced normalcy, defined in terms of artificially maintained body cycles [12].

4.3.4. Sources of advice/information

During an illness episode, individuals commonly seek information and advice from a referral networks and this affects self-diagnosis and treatment by providing reference points for perceptions of illnesses, by contributing knowledge gained through experience and by sharing of medications.

In the present study, friends, relatives, neighbours were indicated as sources of advice /information for self-medication, which amounted to 23.5% was high although similar pattern was observed in other studies [12,22]. However, one-fifth of the respondents claimed, they depend on information obtained from labels, leaflets and drug promotional materials. So balanced, objective and understandable drug information on those materials to assist drug consumers in their choice and compliance of drugs is important. Consumer product information offers a form of standard information, which will be the same whether it is obtained from a general practitioner, specialist or a pharmacist. Consumer product information has the potential to make significant contribution to the wise and proper use of medicine. Patient information leaflets increase compliance, provide information and lead to greater patient satisfaction with their medications. This has been recommended by different organizations [26,28, 43, 129, 145].

4.3.5. Sources of care and concomitant drug use

Nearly 40% of the total respondents had practiced one form of self-care of which 33.9% were self-medication before they came for the current self-medication. As regards, concomitant drug use, 28.2% of respondents were taking drugs prescribed and/or self-medication at the same time while they were coming for that particular self-medication. Of the total respondents who took drugs, 37.4% were drugs on self-medication. There is a danger of drug-drug interactions unless they are asked during dispensing whether they are taking other drug(s) and the necessary adjustments are made. The drugs that were taken and remembered by patients and told to the interviewer made a long list of drugs, which may potentially interact with the currently requested category of drugs. The more drugs a consumer takes alone or with other drugs the greater likelihood that an adverse reaction will occur [146,147]. That is drug consumers may not appreciate the potential for interaction between different types of drugs, for example ASA, the most frequently used OTC drug has wide ranging interaction effects which can modify the pharmacological activity of prescribed drugs [148].

Although prescription to OTC switch increase availability, even not all OTC drugs are, however, benign [145]. And some are associated with potentially severe adverse reactions and side effects. For example, NSAIDs are associated with GI bleeding. This situation is particularly serious when drug consumers do not have adequate knowledge on drugs and not properly counselled by health care providers [149].

4.4. Consumers drug knowledge

Knowledge and understanding improves use of medicine during short-term regimen. It cannot be said that knowledge ensures appropriate use, but knowledge and understanding of treatment are certainly important factors in whether drugs are used well. It was clear that

different problems and different types of illnesses and therapies required different strategies to ensure appropriate use [138]. Family members and members of the community can supervise and teach people to take their medicines appropriately and pharmacists have an important role to play who are often under used.

It is extremely difficult to investigate the rate at which the misuse of pharmaceutical induces illness. There are ethical problems in doing research of this sort without immediately advising people of the risks of a medication and there are problems of documenting carcinogenic due to delayed effects of many drugs. And there are problems of confounding side effects of medication with symptoms of the primary illness [61]. Pharmaceuticals can be dangerous substances in anyone's hands, but particularly so in the hands of those who have no or little awareness of potential risks and correct administration.

4.4.1. Knowledge of name of drugs

By and large, drug consumers know the names of drugs as can be seen from the results of this study. So it is possible to set higher goals to the drug consumer to promote the appropriate use of drugs during educating and counselling on drug use. Among the top 15 most frequently known drugs 5 of them were antimicrobials. Self-medication of this category of drugs needs to be selected by trained health care providers; if possible after sensitivity information or data. This can be done by performing culture and sensitivity tests to the commonly used drugs of microorganisms. Such information should be at hand to base drug selection decisions because resistances of pathogenic microorganisms are rampant to the commonly used antimicrobials. This situation is very much aggravated when drug consumers know the names of those drugs without adequate knowledge of indications and their use and when the drugs are sold without

restriction.

4.4.2. Dosage form preferences

Respondents were asked as to their preference to dosage forms. They reported that around 30% prefer injections and more than 75% preferred oral dosage forms. They were also asked the reasons for their preference of injections over other dosage forms and they mentioned the following reasons: they do not prefer injections or prefer other dosage forms to injections because of pain, dislike, etc. Study indicated that the people's awareness level for mode of transmission of HIV is nearly 96% [150]. In this study, however, respondents who preferred other dosage forms over injections did not mention the risk of contracting HIV due to contaminated needle nor did they indicate the expensiveness of this dosage forms.

4.4.3. Non-compliance to health care providers advice

Drug consumers discontinue taking drugs despite the advice of the health care provider. Non-compliance/non-concordance rate was 30% in this study. One of the reasons mentioned for discontinuing taking drugs was to save for later use, 10.9% of the respondents. In other studies, elsewhere and Addis Ababa non-compliance was also observed in greater than 50% [151,152] of the respondents when the respondents forget and resume taking drugs. Although all non-adherent drug consumers need to be educated on the proper use of drugs, the ones who want to save drugs for later use pose special attention because they lack the knowledge that either drugs can be spoiled/expired during storage or their illnesses may be different than the previous ones although symptoms may appear similar.

Respondents, 58.3% also have the misconceptions that all drugs cannot be taken in an empty

stomach (Table 3.11), which may be true for some drugs only. Taking drugs with food may be ok for some drugs only but not for all. Taking drugs after or with food affects the rate and extent of drug absorption of most drugs [70].

Knowledge of respondents on not taking alcoholic drinks while taking drugs is higher (greater than 90%) and encouraging. However, knowledge of differences between antibiotics and analgesics and knowledge of expiry dates are low, less than 25% and 40%, respectively. Probably, the former may be the reason for the frequent request of antimicrobial drugs (i.e. lack of know how on the difference between antibiotics and other drugs) for self-limiting illnesses.

There is increased evidence that patients want to become involved in decisions regarding their own medical treatment and that this increased role in decision making may lead to greater rates of patient compliance, greater satisfaction with their health care and better health outcomes. As pharmacists become sensitized to the psychological needs of the patient, they can move from the dispensing role, beyond the information-giving role, to the role of healthcare professional and helping professionals, i.e. with primary interest in the well-being of the patient [2].

4.5 Multivariate analysis

Multivariate analysis showed that there is:

- Associations between illness /symptoms of illness with the duration of illness, source of advice/information for self-medication and some socio-demographic characteristics (p value less than 0.05).
- Strong associations (p value = 0.00000000) was observed between the source of advice/information and the frequently requested category of drugs; some socio-demographic variables with sources of advice/information, and the frequently requested category of drugs; and some socio-demographic variables with some knowledge of drugs (such as gender and sharing of drugs, occupation and knowledge of difference between antimicrobials and analgesics; and education and knowledge of expiry date of drugs).

This study has attempted to show the socio-demographic composition and knowledge on drugs of both actual drug consumers and messengers, and self-medication practices of actual drug consumers only. However, this research can be used as a starting point to conduct specific studies and a benchmark to launch interventions.

The study does not attempt to address why drug consumers prefer one community pharmacy over others, their level of satisfaction on the services provided etc, because these were not the objectives of the study; these need to be addressed by an independent research. Had these been included, it might have influenced the outcome of this research due to the complexities and hindrances that may be encountered while observing the behaviour of professionals.

5.CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The developed countries promote self-medication assuming the types of minor illnesses that are amenable to self-medication are somehow known and the range of products to be consumed are delimited. However, as shown by this study, self-medication is widely practiced in the study site, Addis Ababa. The type of illnesses/symptoms of illnesses reported and the category of drugs requested for self-medication are very extensive and not limited to minor illnesses and OTC products list for Ethiopia (1996), respectively. People of all socio-demographic categories practice self-medication.

The most frequently self-diagnosed illnesses or symptoms of illnesses were: GI illnesses and headache/fever. Of these more than 30% were less than 24 hours duration and nearly 80% less than seven days duration of illness. The reasons given by respondents for self-diagnosis and self-medication were non-seriousness of the illnesses, for emergency use and prior experience about the illness. Whatever the duration of illnesses and reasons for self-diagnosis, nearly 60% requested drugs by mentioning the names of the drugs and more than one-fifth by telling the symptoms of their illnesses. Requests for antimicrobial drugs were very high for all reported illnesses and very low for ORS.

There is no doubt about the role or contribution of self-medication to the health service. Nevertheless, self-medication has to be within the scope or has to have limits as to the kind of illnesses to be self-diagnosed and treated, and the type of drug products that can be consumed. Consumers knowledge of drugs were also not adequate. In addition to this, even if self-

medication is within its scope, it has to be accompanied with appropriate counselling and objective and complete drug information by the health care provider, particularly, the pharmacist

Different actors argue for and against self-medication based on their perspectives and backgrounds, which may sound good at one time but may not at other times. The contribution of self-medication to the health care delivery of any country is well noted if it is within its limit that is, limited by the type of diseases to be treated and the type of products to be self-medicated. Without self-medication there will be additional burden on the health facilities and the scarce health care resource would provide less coverage. However, if this unlimited self-medication continues its anticipated positive contribution to primary health care will be surpassed by its negative consequences.

There is optimism about the contribution and future potential of the pharmacy profession/ community pharmacy in improving the health care delivery of this country. There are a number of reasons:

- Accessibility and close proximity of the community pharmacies to the community;
- Wider and easy contact with the community;
- Minimum language barrier; the language of the community can be translated into scientific meaning and interpretation which is a critical factor in diagnosis and treatment;
- Potential for development of trust between the community and the pharmacist.

Comment [PC1]: pr

However, these potential may be lost and challenged or compromised by some critical success

factors such as:

- Readiness in terms of willingness and know-how of the pharmacy professionals;
- Availability of pharmacy professionals during working hours;
- Convenience of the community pharmacy to deliver counselling and drug use education services;
- Continuing education on self-medication to pharmacy professionals and
- Unethical practices and/or defaming by some and others, etc.

In fact, the community pharmacies have to be paid for their standard services. This can be obtained by either selling drug product plus drug information; by providing computerized drug information and counselling related to the product; by providing other health care service such as reproductive health services to the community; by providing services such as blood pressure (BP), body mass index (BMI) and cholesterol level measurements and by keeping computerized drug use history of a family, etc. All these cannot come overnight and needs continued commitment of professionals. But it is believed it will come.

Understanding customers' needs is an important factor in order to develop services. Drug consumers purchase a drug product and package of information and services to address a need or solve a problem. In the future, more people and organizations may choose a community pharmacy based not so much on product price, but on the package of values that accompany the product. Adding value to the product or service will improve competitiveness and decrease risk of failure. Value added services could improve patient therapy and provide health care costs savings.

Improving the use of medicines in developing countries is a major responsibility that touches all groups in the medication cycle. Pharmacists are in a unique position to educate their clients on the appropriate use of pharmaceuticals. However, they too have economic interest and very often, instead of using their professional knowledge to enhance the adequate use of medicines, they respond to clients' demands and let consumers decide what to ask for and what to buy. Whatever the reasons for the inappropriate use of pharmaceuticals, the economic and social cost of their misuse is staggering.

Antimicrobials are requested for self-medication for many of the reported illnesses or symptoms of illnesses as shown by this study. Needless to say, their OTC use has to be restricted. The extraordinary therapeutic effects, the considerable resources spent worldwide, the occurrence of resistance and the frequent misuse of antimicrobials are compelling reasons for concern about the rational use of these powerful drugs. Non-compliance on the use of drugs (prescribed and self-medicated) is evident as indicated by respondents in this study like shown by other studies done elsewhere. Therefore, education of the public on the proper use of drugs is essential. Due emphasis to special needy drug consumers like the illiterate, children, elderly, pregnant and breast-feeding mothers should be given during dispensing of drugs. Symbolic labelling and advice could be an option for drug consumers who cannot understand the written information provided.

The public and sometimes the health care providers have to be educated on category of illnesses that are amenable to self-diagnosis and on drug products that can be consumed by self-medication. The public have to be aware of the fact that even if those category of illnesses that can be treated and drugs that can be self-medicated do require the advice and

closer attention of the health care providers. The public has to be educated and told every time those similar symptoms may not mean the same illnesses. And also knowing the name of the drug and dose does not qualify for adequate knowledge of drugs.

The health care providers have to provide all the essential information about the drug product irrespective of whether the drug consumer knows all, some or none about the drug product. Drug information provision has to be two-way communication; the drug consumer has to ask questions, express her/his worries and the health care provider has to provide objective and simplified drug information understandable by the particular subject. The providers have also to make sure whether the recipient of the drug information has understood it properly by requesting the drug consumers. This is because there is no one-to one correspondence between telling and knowing and between knowing and doing.

Strong association was observed between the source of information/advice and type of category of drugs requested for self-medication particularly, request for antimicrobial drugs. This may be further supported by the fact that among the top 15 frequently known drugs by drug consumers one-third were antimicrobial drugs.

Although one cannot conclude that self-medication through the advice of friends, relatives and neighbours is absolutely wrong. It is very much advisable to rely on health care providers as source of information/advice. Because other than health care providers, particularly pharmacy professionals may know only the "tip of an ice berg" about drugs. Knowing the name or dosage of a drug cannot be adequate knowledge on drugs, which are important for their proper use. This situation may be more serious when concomitant use of drugs exists,

which requires the closer attention of the health care provider.

There is closer association between socio-demographic characteristics and knowledge of drugs. Some of the socio-demographic characteristics such as education, gender, religion, occupation, do determine the extent of knowledge on drugs in general. Socio-demographic characteristics and the source of information/advice affect the type of category of drug products requested for self-medication.

Drug dosage form preferences of respondents were also less than ideal; preference for injections was very high than expected. Much more to say is the reasons given for not preferring injections or for preferring oral dosage forms. Awareness of expensiveness and risks of infection with injection dosage forms were not mentioned by drug consumers.

Even though sharing is an important element of our tradition/culture, sharing of drugs is not recommended. Particularly, sharing of prescription only drugs and potent drugs is dangerous. This may worsen the condition of the drug consumer by delaying the closer attention of the health care provider and due to increased side-effects/adverse effects of the drugs, especially so when inappropriately used and when more than one drug is being taken. Therefore, health care providers who are engaged in drug information provision and counselling, particularly, pharmacy professionals should translate their technical and scientific knowledge to the level and need of the drug consumer in a way that can be easily understood to promote rational use of drugs. Otherwise, all the efforts and resources spent before this will be worthless.

Use of potent drugs for self-limiting illnesses of short duration may create problems than

providing benefits. So home management of such illnesses such as ARI, acute diarrhoea and GI complaints have to be emphasized during health/drug use educating to the public by health care providers.

Respondents also requested antimicrobial drugs for self-limiting and short duration of illnesses such as headache/fever, RTI and GI illnesses. The public and including the health care providers have to be educated on the role and contribution of antimicrobials i.e. what antimicrobials can do and cannot do and also on the differences between antimicrobials and analgesics. For this, consumer product information and printed educational materials on proper use of drugs is a necessity. Request of banned drugs such as Dipyrrone tablet and Dichlorophen and very other potent drugs for self-medication have to be avoided or limited to certain illnesses, respectively.

Self-medication during breast-feeding and pregnancy is not uncommon. Therefore, women have to be made aware of the risks of taking drugs during such periods. In addition, preventive activities should extend during antenatal follow up on reducing the prevalence of self-medication during pregnancy.

One has to know the ideals, behaviour, knowledge, attitude, belief, reasoning, etc, of drugs, and drug use and self-medication practices to identify the common errors that can be made. This calls for the design of interventions including development of educational materials.

5.2 Recommendations

Particular attention and specific advice/counselling should be provided during self-medication for all drug consumers, particularly, to drug consumers such as pregnant and breast-feeding

women, children, elderly and the chronically ill drug consumers.

Concomitant drug use both prescribed and self-medicated is not uncommon. So Pharmacy professionals and prescribers should ask their clients whether they are taking other drugs during the time of dispensing and prescribing, respectively.

Proper diet and life style modifications are important practices for promoting health and prevention of illnesses. However, the public should be educated about drugs and should be given the top priority to encourage the public to responsibly self-medicate. That is, should educate the type of illnesses to be self-diagnosed and treated, and the type of drugs to be consumed during self-medication. Should develop public education materials on the proper use of drugs appropriate to the target. Sharing of drugs particularly potent drugs is a concern.

The pharmacy professionals have to live up to the standards in the provision of health/drug use education and counselling, particularly to self-medicating drug consumers who mainly rely on the information provided by professionals in the community pharmacy. They should use or demonstrate their expertise on drugs; they have to show their potential as competent health care providers, they have to meet the expectations of the public. The verbal and written language and information should be tailored to the needs of the particular drug consumer including symbolic labelling for illiterate consumers. Health care providers have to advice or counsel about the drugs dispensed irrespective of the level of knowledge of the client.

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AREAS FOR FURTHER RESEARCH

It is often said that a good research is that which raises many questions than it answers.

To date, studies on self-medication practices investigate little about the reasons behind those practices. Consumers' drug knowledge is little studied and is under emphasized area of research. Thus, the following are suggested as possible areas for further research:

- Why and when do drug consumers self-medicate the way they are using? Are Self-medicating drug consumers properly using the drugs they obtained? Why do people self-medicate rather than seeking formal health service?
- What promotes self-medication? How to achieve responsible self-medication?
- Are drug consumers satisfied with the services they obtain from the community pharmacies during self-medication? If not, what are the sources of dissatisfaction? Are pharmacy professionals living up to the expectations of their clients? Why do drug consumers prefer one community pharmacy but not the other?
- Interventions research in the areas of self-medication practices and consumers knowledge of drugs.
- Preparation of educational materials (to the public and to the health care providers) to encourage proper/appropriate use of drugs and to encourage responsible self-medication practices.

8. Approximate drug expenditure: Birr for the last 6 months

9. Religion:

- 9.1. Christian, Orthodox 9.2. Christian, Protestant 9.3. Muslim
9.4. Christian, Catholic 9.5. Others, please specify.....

10. Condition of the drug consumer:

- 10.1. Pregnant 10.2. Breastfeeding 10.3. Has a chronic disease such as
liver, kidney, cardiac, etc. 10.4. Child under the age of 12 years
10.5. Geriatric

II. PROSPECTIVE SELF-MEDICATION

1. What illness/symptoms of illness prompts you for self-medication? Interviewer if you know for sure the specific diagnosis please write as such here.....

- 1.1. Respiratory Tract Infection (e.g. cough, cold, etc.) Yes No
1.2. Gastro-intestinal disease (Diarrhoea, heart burn, etc.) Yes No
1.3. Sexually Transmitted Disease Yes No
1.4. Eye disease Yes No
1.5. Headache/ fever Yes No
1.6. Skin disease, injury, etc. Yes No
1.7. Maternal/menstrual Yes No

1.8. Others, please specify

2. How long is the duration of illness before seeking this self-medication?

2.1 Within 24 hours 2.2. 1 to 7 days 2.3. 1 to 4 weeks

2.4. 5 to 12 weeks 2.5. above 12 weeks

3. Why do you resort to self-diagnosis and self-medication now?

3.1. Emergency use

3.2. Disease is not serious

3.3. For prevention of known/unknown disease(s)

3.4. Prior experience about the drug (own and/or friends, read about it, etc.)

3.5. Less expensive in terms of time/money

3.6. Others, please specify

4. How did you request the drug(s) you want?

4.1. By mentioning the name of the drug

4.2. By mentioning the group to which the drug belongs, e.g. antacid

4.3. By telling the symptom of your illness

4.4. By showing an old sample/package of the drug

4.5. By presenting piece of paper on which the name of the drug is written

4.6. By describing the shape/shape or any other physical characteristics

4.7. Others please specify.....

5. What type of drug(s) you requested? (even if not dispensed):

5.1. Antimicrobial; quantity requested.....or by the amount of money

5.2. Analgesic/antipyretic

5.3. Respiratory drugs

5.4. Gastrointestinal drugs

5.5. Vitamins

5.6. Oral Rehydration Salt

5.7. Told the symptom only

5.8. Others, please specify.....

6. What do you know about the drug you requested? (only if specific drug/group is requested)

6.1. Name of the drug

6.2. Indication (i.e. correspondence of the symptom and the drug)

6.3. Dose

6.4. Frequency

6.5. Duration

6.6. How to use (i.e. shaking, chewing, etc.)

6.7. Storage of the drug at home 6.8. Others, please specify.....

7. What are your sources of information/advice for self-medication?

7.1. Received no advice (respondent knows about it)

7.2. Read label or leaflet or promotional material of the drug

7.3. Advised by neighbours, friends or relatives

7.4. Suggested by traditional healers

7.5. Advised by Doctors, Nurses, Health workers but without prescription

7.6. Recommended by Pharmacists or those working in the pharmacy

7.7. Others, please specify.....

8. Have you used other sources of care before coming for this self-medication? Yes No

9. If yes, which sources of care?

9.1. Public health facility 9.2. Private clinic

9.3. Self-medication 9.4. Holy water

9.5. Traditional medical practitioner

9.6. Others, please specify.....

10. Are you taking other drugs than this one? Yes No if No, please go to Q.14

11. If yes, is it:

11.1. Prescribed by the health care provider

11.2. Self-prescribed

12. Can you mention the name of the drug to Q. 11?.....

13. If yes to self-medication, what was the outcome of the treatment?

13.1. Cured the illness

13.2. Prevented the illness

13.3. Improved the illness

13.4. Has not cured or prevented or improved

13.5. Others, please specify.....

14. How frequent do you visit a community pharmacy to purchase drugs without prescription for your self or for someone over the last 6 months?

14.1. Once 14.2. Twice 14.3. Thrice

14.4. Four times 14.5. Five times 14.6. More than five times

15. Do you have any other comments on self-medication?.....

III. PRIOR KNOWLEDGE ABOUT DRUGS

16. List the TOP FIVE drugs 1. You know most 2. Used frequently, and their indication, usage, and side effects. Interviewer judge the information provided by respondent and mark.

	16.1. Drug Name	16.2. Knows Indication		16.3. Knows Usage (dose, frequency duration)	
		Yes	No	Yes	No

17. What type of drug information you require?

- 17.1. Correct name of the drug Yes No
- 17.2. Indications Yes No
- 17.3. Dose, frequency and duration Yes No
- 17.4. How to use (i.e. shaking, chewing, etc.) Yes No
- 17.5. Side effects, contraindications or precautions Yes No
- 17.6. Storage of the drug at home Yes No

17.7. Others, please specify.....

18. Do you know that some drugs:

18.1. Cannot be taken with other drugs? Yes No

18.2. Cannot be taken with alcoholic drinks? Yes No

18.3. Cannot be taken with some kind of food? Yes No

18.4. Cannot be given to children? Yes No

18.5. Cannot be given to pregnant & breast-feeding? Yes No

18.6. Cannot be taken by people with chronic diseases? Yes No

19. Do you know that same drug can be given by oral, injection or other route? Yes No

20. Do you have special preferences to any of the following dosage forms and why?

Dosage form of the drug	Why (write as told)
Tablet	
Capsule	
Liquid preparations	
Injections	
Others, specify	

21. Do you discontinue taking drugs before the date advised by the health provider? Yes No

26.5. Others, please specify.....

27. If you are fasting, do you discontinue drugs too? Yes No

28. If Yes, Why?.....

29. While taking drugs, do you usually take alcoholic drinks? Yes No

30. Do you share drugs with family members, friends, neighbours, etc? Yes No

31. If Yes, Why?.....

32. Do you believe that the same drug can be a remedy or a poison? Yes No

If yes, Why?.....

33. Do you check expiry date of drugs during purchasing or before taking? Yes No

34. Do you know the difference between antimicrobial and analgesic drugs? Yes No

35. If Yes to Q. 34, what is it?.....

36. What other information do you know about drugs?.....

THE END

INTERVIEWER THANK THE RESPONDENT FOR GIVING HIS/HER TIME AND
EXPERIENCE FOR THIS RESEARCH

Annex 2. Questionnaire Form B, for Messengers

I. SOCIO-DEMOGRAPHIC Characteristics of the Respondent (Form B)

1. Age:

2. Gender:

2.1 Male

2.2. Female

3. Marital Status:

3.1 Single

3.2. Married

3.3. Divorced

3.4. Widowed

3.5. Separated

4. Family Status:

4.1 Father

4.2. Mother

4.3. Son or Daughter

4.4. Other member of the family

4.5. Others

5. Educational Level:

5.1 Illiterate

5.2. Read and write only

5.3. Primary school

5.4. Secondary school

5.5. College and above

5. Occupation:

6.1. Student

6.2. Government employee

6.3. Self-employed

6.4. Employed by a private business

6.5. Unemployed

7. Average monthly income;.....Birr

8. Approximate drug expenditure: Birr for the last 6 months

9. Religion:

9.1 Christian, Orthodox 9.2. Christian, Protestant 9.3. Muslim

9.4. Christian, Catholic 9.5. Others, please Specify.....

10. Condition of the drug consumer:

10.1. Pregnant 10.2. Breastfeeding

10.3. Have chronic diseases such as liver, kidney, cardiac, etc.

10.4. Child under the age of 12 years 10.5. Old age

II. PRIOR KNOWLEDGE ABOUT DRUGS

1. List the TOP FIVE drugs you know most or used frequently, and their indication usage, and side effects (write as told)

	1.1. Name of Drug	1.2 Knows Indication		1.3. Knows Usage (dose, frequency duration)	
		Yes	No	Yes	No

2. What type of drug information you require?

2.1. Correct name of the drug

2.2. Indications

2.3. Dose, frequency and duration

2.4. How to use (i.e. shaking, chewing, etc.)

2.5. Storage of the drug at home

2.6. Others, please specify.....

3. Do you know that some drugs:

3.1. Cannot be taken with other drugs? Yes No

3.2. Cannot be taken with alcoholic drinks? Yes No

3.3. Cannot be taken with some kind of food? Yes No

3.4. Cannot not be given to children? Yes No

3.5. Cannot not be given to pregnant & breastfeeding? Yes No

3.6. Cannot be taken by people with chronic diseases? Yes No

4. Do you know that same drug can be given by oral, injection or other route? Yes No

5. If yes, do you have special preferences to any of the following dosage forms and why?

Dosage form of the drug	Why (write as told)
Tablet	
Capsule	
Liquid preparations	
Injections	
Others, specify	

6. Do you discontinue taking drugs before the date advised by the health provider? Yes No

6. If Yes, what is/are the reason(s)?.....

6.1. When illness is relieved

6.2. When you believe the drug is not working

6.3. When side effects create problems

6.4. To save for later use

6.5. Others, please specify.....

7. Do you believe that two or more drugs will do better than one dose? Yes No

8. If Yes, Why?.....

9. What do you do if you forget to take a dose of a drug and remembered immediately after forgotten?

9.1. Taking as soon as remembered and continue the usual dose as scheduled

9.2. Double the next dose and continue the rest as scheduled

9.3. Leaving the missed dose and continue the rest as scheduled

9.4. Others please specify.....

10. Where do you keep drugs at home?.....

10.1. Out of the reach of children Yes No

10.2. All drugs in the Kitchen/bathroom Yes No

10.3. All drugs in a Refrigerator Yes No

10.4. All drugs in one place but separately Yes No

10.5. Others, please specify.....

11. If you are fasting, do you discontinue drugs too? Yes No

12. If Yes, Why?.....

13. While taking drugs, do you usually take alcoholic drinks? Yes No

14. Do you share drugs with family members, friends, neighbours, etc? Yes No

15. If Yes, Why?.....

16. Do you believe that the same drug can be a remedy or a poison? Yes No

If yes, Why?.....

17. Do you check expiry date of drugs during purchasing or before taking? Yes No

18. Do you know the difference between antimicrobial and analgesics drugs? Yes No

19. If Yes to Q. 34, what is it?.....

20. What other information do you know about drugs?.....

.....

.....

THE END

**INTERVIEWER THANK THE RESPONDENT FOR GIVING HIS/HER TIME AND
EXPERIENCE FOR THIS RESEARCH**

Annex 3. GUIDELINES ON HOW TO COMPLETE THIS INTERVIEW/QUESTIONNAIRE

1. Politely greet the respondent.
2. Introduce yourself to the respondent. But do not ask his/her name.
3. Make sure that you are there not to evaluate the pharmacy or the patient but to collect information on self-medication, the objective of which is mentioned below.
4. **INTERVIEWER** Please make clear the objectives of this interview/questionnaire from the outset.
“This interview is conducted to study self-medication practices and knowledge on drugs, particularly, how people request drugs, their sources of information about the drugs they request, and prior knowledge of drugs, etc. The findings of this study will be used to plan educate people in general, and drug consumers in particular. Your collaboration in answering these questions will be helpful to the whole community in Ethiopia.”
5. **INTERVIEWER** Please ask for the willingness of the patient to be interviewed. Thank the respondent for giving his/her valuable time to participate in this research of high public health importance.
6. **INTERVIEWER** Please select proper place in the pharmacy (that can maintain privacy of the respondent) to conduct the interview.
7. **INTERVIEWER** This interview is confidential research and confined to the data collector and to the researcher only. **NO PHARMACY AND PERSON INTERVIEWED IS QUOTED BY NAME.** Tell them that they can be confident about this. Therefore, your genuine provision of

information is highly desirable.

8. **INTERVIEWER** This Questionnaire has **three parts**:

- The **first part** asks about the socio-demographic characteristics and some illness or disease condition of the respondent;
- The **second part** attempts to investigate about self-medication practices of the respondent and
- The **third part** to assesses consumers' drug knowledge.

9. **INTERVIEWER** The questionnaire has 10 + 36 questions and 7 pages:

- All parts of the questionnaire should be completed.
- The questionnaire is to be completed both **for dispensed drugs** and **for drugs that are requested but not be dispensed**.
- Interesting observations/discussions relevant to the objective of this study but not covered in this questionnaire may be recorded at the back of it.
- If possible, conduct this interview before dispensing of the drug.

10. All those who are not interviewed for any reason should be recorded on the separate format prepared for this purpose.

THANK YOU

DECLARATION

I, the undersigned, declare that this thesis is my original work and has not been presented for a degree in any other university.

Name: Tenaw Andualem Tadege

Signature:-----

This thesis has been submitted for examination with my approval as a university advisor.

Name: Professor Tsige Gebre-Mariam

Signature:-----

Place and Date of Submission: Addis Ababa, Ethiopia, June 2002.

