Pharmacy Personnel In Hawassa, A Facility Based Cross Sectional Study

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This is to certify that the thesis prepared by ___________________________________, entitled: knowledge, attitude and practice on generic medicine among community pharmacy clients' and pharmacy professionals in Hawassa and submitted in partial fulfillment of the requirements for the degree of Master of Science in Pharmacoepidemiology and Social Pharmacy, compiles with the regulations of the university and meets the accepted standards originality and quality.

Signed by the Examining Committee:

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Chairman of Department

List of Acronyms

ETB	Ethiopia Birr
FMHACA	Food Medicine and Health Care Administration and Control Authority
FMOH	Federal Ministry of Health
GPhA	Generic Pharmaceutical Association
HAI	Health Action International
MDG	Millennium Development Goal
NDP	National Drug Policy
USA	United States of America
WHO	World Health Organization

Abstract

Knowledge, attitude and practice on generic medicine among community pharmacy clients' and pharmacy personnel in Hawassa; a facility based cross sectional study.

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Rational use of generic medicines can provide substantial savings in health care cost of government, patients and insurance funds without affecting the therapeutic effect of the medicine. However, studies in different countries indicated that poor knowledge and negative attitude towards generic medicine among clients and pharmacy personnel is the most challenging barriers for the use of generic medicines. So this thesis assessed knowledge, attitude and practice on generic medicine and associated factors among community pharmacy clients' and pharmacy personnel in Hawassa.

A facility based cross sectional study was conducted from April 2012 to September 2012 at all community pharmacies of Hawassa. Six hundred sixty two study participants were selected from six community pharmacies based on the average number of prescription filled each day. In-depth interview was also conducted with pharmacy personnel working in community pharmacies, drug shops, hospital pharmacy, whole sale, FMHACA and health bureau.

The result showed that only 22.4% of clients' were knowledgeable about generic medicine while most pharmacy personnel had good knowledge of generic medicines. Barely 32 % of clients have positive attitude towards generic medicines and over one in three of clients and pharmacy personnel had distrust on generic medicine approval system of Ethiopia. Majority (72.4%) of the clients had ever used generic medicines. Age and educational status were shown to be significant predictors of knowledge on generic medicine. Age, educational status and experience with generic medicines had a strong and positive association with attitude. The use of generic medicine was found to be significantly associated with respondents' education, knowledge, attitude and recommendation from pharmacy personnel.

Therefore, concerned bodies should provide public education about generic medication to fill knowledge gap and to enable clients to undertake an informed decision in choosing either generic medicine or branded alternative. The generic policy implementation should be strengthened by introducing incentives for pharmacy personnel and prescribers to prescribe and dispense generics.

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1. Introduction

1.1. Background

Pharmaceuticals are one of the cornerstones of human development as their rational consumption can reduce morbidity and mortality rates and enhance the quality of life (Cohen-Kohler, 2007).However one third of the world population lacks reliable access to essential medicines. In Africa and Asia, more than half of the populations have no regular access to essential medicines (Hogerzeil and Mirza,2011).

Medicine prices and financing are inescapable factors in providing a full range of treatments for prevailing common diseases especially in developing countries. In such countries the price of medicine is considered to be one of the most important obstacles to access essential medicines (WHO, 2004).

Generic medicines have been instrumental in reducing cost and improving affordability. The term ‘generic medicine’ refers to pharmaceutical product usually intended to be use interchangeable with the innovator brand product , manufactured without license from the binnovator manufacturer and marketed after expiry of patent or other exclusivity rights. Generic medicine become available once the patent protection granted to the brand medicines have expired, which leads to greater market competition and lower prices. Generic medicines contain the same therapeutic substance as the original formulations (WHO/HAI,2008).

Generic medicines are similar to branded medicines in dosage form, safety, strength, route of administration, quality, performance characteristics and intended use. Some clinical and bioavailability studies indicated that generic medicine are bioequivalent to a branded alternatives and elicit the same clinical effects (WHO/HAI, 2008; Kesselheim et al., 2008).

Rational use of generic medicine can provide substantial savings for patients, healthcare budgets and insurance funds without affecting the quality or the therapeutic effect of the prescribed medicine(Kirking and Ascione, 2001).In 2009 alone the use of FDA-approved generic pharmaceuticals saved the America health care system $139.6 billion(GPhA, 2010).Consumers can save up to 90 per cent of the cost of their medication by using generic products (Shafi and Hassali, 2008).

Although generic medicines are bio-equivalents to their innovator counterparts and are produced according to good manufacturing practices, generic medicines are widely believed as inferior in therapeutic efficacy and quality to branded alternatives and their use worldwide is poor. The most challenging barriers for the use of generic medicines are lack of knowledge and negative attitude among consumers and pharmacy personnel. Most consumers and some pharmacy personnel believed that generic medicines are inferior to branded alternatives in quality, safety and efficacy (Lebanova, Manolov and Getov 2012; Chong et al.,2011).

In our country there is limitation of studies that explore knowledge, attitude and practice on generic medicine. Therefore this study assessed knowledge, attitude and practice and associated factors among community pharmacies' clients and pharmacy personnel in Hawassa.

1.2. Statement of the problem

Access to medicines of assured quality remains a major concern worldwide. About 30% of the world's population lacks regular access to essential medicines; in the poorest parts of Africa and Asia this figure rises to over 50%(Cameron et al., 2009). The most crucial element which restricts access to medicines is drug pricing and affordable price is one of the measures to counteract the global medicine gap. The issue of access and affordability is thus addressed by using generic medicines as a cost containment strategy globally (WHO/HAI, 2008).

The main sources of drug expenditure in Ethiopia is households' out-of-pocket and a large segment of the population purchase drugs from private drug retail outlets (FMOH/WHO, 2007). According to a survey on price of medicine in Ethiopia, innovator brand products in the private pharmacies was generally 5.9 times as expensive as generic equivalents (FMOH/WHO,2005). Thirty nine percent of the clients in the private sectors of Addis Ababa were not able to pay for the prescribed medicines and the most important predictors of community's ability to pay for the prescribed medicine is the price of the prescribed medicines (Mohammed et al., 2009).

Therefore Generic medicine use is a considerable option to allow reasonable access to health care for consumers in Ethiopia. However, experiences in other countries indicated that poor knowledge and the negative attitude towards generic medicine among consumers and pharmacy personnel are the most challenging barriers for the use of these medicines (Decollogny et al., 2011; Lebanova, Manolov and Getov 2012; Chong et al., 2011)

Despite the active role which pharmacy personnel and clients can play in rational use of generic medicine, in our country study exploring pharmacy personnel and clients' knowledge, attitude and practice on those medicines has not been conducted. Hence the finding from this study will provide the baseline data to assist policy makers and other stakeholders to employ appropriate intervention strategies like educational intervention on consumers to promote the quality use of generic drugs.

2. Literature review

2.1. Clinical comparison of brand name medicine and generic alternatives

Although there is concern among patients and health care professionals that brand name medicines are clinically superior to generic alternatives, different clinical studies assured that generic medicines are bioequivalent to branded alternatives: a systematic review that summarized clinical evidences by using peer-reviewed publications has concluded that there is no evidence of safety and efficacy superiority of brand name cardio-vascular medicines to generic alternatives (Kesselheim, 2008). Similarly bioequivalency study of procainamide in patients with ventricular dysarhythmias found no differences in effectiveness between the generic and brand-name versions (Kasmer et al., 1987). A retrospective study conducted on 17 patients with schizophrenia and schizoaffective disorder also showed no safety and dosage requirements differences between Clozanil® and generic clozapine groups for any of the outcomes measured (Sajbel , Carter and Wiley,2001).

2.2. Knowledge, attitude and practice of clients on generic medicine

2.2.1. Clients' knowledge on generic medicine

Studies in different countries showed that there is gap in consumers' knowledge about generic medicines: A cross sectional survey in Malaysia indicated that more than two third(67.5%) of community pharmacy clients' did not know what generic medicines are (Thomas &Vitry, 2009). Similar across sectional study in Auckland reported that about half(48.4%) of the survey participants' were not familiar with the term ‘‘generic medicine’’ (Babar et al., 2010). A qualitative study conducted in South Africa indicates that most consumers had very little understanding of generic medicines, with some people feeling that generic medicines were inferior or fake, mainly because these medicines were cheaper or supplied for free by the state (Patel, 2010).

Conversely a population-based cross-sectional survey in Brazil reported that more than two third(86%) of the participants knew that generics cost less and have similar quality to brand name medicines (Bertoldi et al., 2005). Likewise a study in German indicated that nearly two thirds(63.3%) of the patients knew the difference between branded medicines and generic alternatives (Himmel et al., 2005).

Pharmacists and physician were maintained as the main sources of information about generic medicine. Babar et al.,(2010) and Al-Gedadi et al., (2008) reported that most respondents get medicine information from pharmacists followed by physician. Studies in Iraq and Bulgaria also showed that pharmacists are the main source of information regarding generic medicine (Sharrad & Hassali, 2011; Lebanova et al.,2012).

Different studies explored that some people do not know the term ‘‘generic medicines’’ as such but possibly are aware of or have had experience with a cheaper or commercial medicine: a qualitative approach in Australia, reported that some of the participants were not familiar with the term ‘generic medicines’ but were more familiar with the term ‘cheaper brand of medicine’ (Hassali et al., 2005). Likewise qualitative study in Iraq identified that none of the consumers were familiar with the term ‘‘generic medicine’’ but familiar with the term ‘‘commercial medicine’’. Most of the participants understood that generics cost less and their physicians and pharmacists had given the information on those medicines (Sharrad, & Hassali, 2011).

2.2.2. Clients’ attitude towards generic medicine

Though generic substitution for brand name medications has long been an accepted standard of practice by health bodies across the world, different studies show that many patients remain under the impression that generics are less expensive than brand name medication because they are inferior and less effective:

A study assessing patient’s attitude towards generic medicine in Bulgaria stated that 94% of the respondents believed that generic medicines are inferior to brand medicines in quality, safety and effectiveness (Lebanova et al., 2012). On the other hand 66.7% of the study participants in German consider that generic medicines are as effective as branded alternatives (Himmel et al.

2005).In terms of side effects a study conducted in Penang Malaysia by Al-Gedadi et al. (2008), indicated that 31.2% of the participants felt that generic medicines may cause more side effects.

Regarding the quality of generic medicine, studies conducted in Malaysia and German showed that approximately 40% of the respondents thought generics are inferior in quality than the branded medicine (Himmel et al. 2005; Al-Gedadi et al., 2008). On the contrary 70% of the respondents from a southern Brazilian city believed that the quality of generics was equivalent to branded alternatives (Bertoldi et al, 2005.) similarly 83% of the participants in Slovakia considered that the quality of generic products to be similar with branded alternatives (Palagyi & Lassanova, 2008).

Participants' attitude towards generic medicines was determined by different factors. According to the result of Lebanova et al. (2012) study the core factor determining patients' attitude towards generics is the information they receive from healthcare professionals, more specifically the medical doctor. Babar et al. (2010) also identified clients' knowledge, recommendation by a pharmacist and their type of illness as determinants of clients' attitude.

2.2.3. Clients' practice on generic medicine

Concerning clients' practice on generic medicine a cross sectional survey in Malaysia indicated that 42.4%of community pharmacy clients' used generic medicines and most of them (79.0%) felt that generics worked well. For those who had not used generics or were unsure if they had, the majority felt that they would be unwilling to use them as they felt that they were not as effective or as safe as brand name products (Thomas &Vitry, 2009).

There are different factors that affect the acceptance of generic medicines by consumers. Some factors identified by Hassali et al. (2005) among consumers living in Melbourne, Austria include cost and positive encouragement from the pharmacist or prescriber. The major reported barriers for generic medicine use were medical practitioners, side-effects from generic, and confusion that may arise from using different brands. A study in Iraq also identified physicians' inclination to prescribe innovative drugs, confusion that arise from the use of different brands, confront/ positive experience with brand name medicine and the presence of counterfeit drugs in the market as barriers for acceptance of generic medicines (Sharrad, & Hassali, 2011).

Another important thing to focus on, concerning clients acceptance of generic medicine is type of medicine prescribed by physicians. Gossell-Williams & Harriott's (2007) finding reported that approximately 70% of the respondents in Jamaica would not request substitution of prescribed medicines, whether it be innovator or generic correspondingly.

Patients are more likely to accept generic medicines if they received reassurance from pharmacists. Additionally advices from pharmacists can improve the physicians' generic prescribing rate (Leach & Wakeman, 1999; Braybrook & Walker, 2000; Gossell-Williams & Harriott, 2007). Therefore, it is crucial for pharmacists to have a good understanding of issues around generic medicines.

2.3. Pharmacy personnel's knowledge, attitude and practice on generic medicines

Regarding Pharmacy personnel's knowledge on generic medicine, some studies showed gap in knowledge and others good knowledge. A cross sectional survey in Malaysia indicated that about half (50.2%) of the community pharmacists indicated that all products that are approved as generic equivalent can be considered therapeutically equivalent with the innovator brand. In this study majority of the respondents indicated that a generic medicine must contain the same amount of active ingredient (84.5%) and must be in the same dosage form as the innovator brand (71.7%)(Chong et al. 2011).

Babar et al. (2011) cross sectional study in New Zealand also showed that about half of the respondents stated that generic medicines and original brand medicines are equally effective and majority (70%) of pharmacists stated that there is no difference in safety between branded and generic medicines but with regard to quality, more than half (65%) stated that original brand medicines were of higher quality than their generic counterparts. A qualitative study in Pakistan indicated that all the eight pharmacists interpreted the term 'generic medicine' correctly and gave an explanation with examples (Jamshed et al, 2010).

Pertaining pharmacy personnel's attitude, mixed results were obtained from different studies: Gossell-Williams & Harriott's (2007) study on pharmacist views of generic medicine in Jamaica investigated that majority of pharmacists lack confidence on generic medicine, as only 44.4%

thought generic medicine were of the same efficacy as innovators and this perception was based mainly on feedback from patients. Similarly a cross sectional study in Malaysia indicated that 56% of the community pharmacists' agreed that therapeutic failure is a serious problem with some generic medicines and as to quality of generic medicine around one fifth (21.4%) of the respondents agreed with the statement that generic medicines are of inferior quality than innovator brand name medicines (Chong et al., 2011).

Another significant point to concentrate on is pharmacy personnel's confidence on generic approval system of the countries. A cross sectional survey across four states in Peninsular Malaysia indicated that only 44.7 per cent of community pharmacists had very high to high confidence on the generic approval system in Malaysia with regards to bioequivalence (Babar and Awaisu ,2008).

Relating to generic substitution practice by pharmacy personnel different studies were conducted. For instance a cross-sectional descriptive study evaluating the generic substitution practices under taken by community pharmacists in Malaysia indicated that majority of the prescribers (84.4%) when contacted by the pharmacists accepted the suggestion for generic substitution. From consumers' perspective, 88% of the consumers involved in this study accepted pharmacist's recommendation to generically substitute their prescribed medications (Ping , Bahari & Hassali , 2008). On the other hand Babar et al*(*2011) investigated that a large number of pharmacists reported concerns regarding brand substitution and offered suggestions such as the need for advertising campaigns, patient pamphlets, updating prescribers' software and distinct packaging for generic medicines. It was found that pharmacists' perceptions of generic medicines are primarily driven by experiences with consumers. Likewise a qualitative study in Pakistan point out that three of eight community pharmacists were not disposed to dispensing generic medicines as they considered them unsafe (Jamshed et al 2010).

Although there are studies on clients' and pharmacy personnel's knowledge, attitude and practice on generic medicine in different countries, there is little done on this area in Ethiopia. So this study aims at filling this gap in information regarding the Knowledge, attitude and practice of generic medicine among clients and pharmacy personnel in Ethiopia.

3. Conceptual framework

Assessing knowledge, attitude and practice of clients' and pharmacy personnel on generic medicine is relevant. To do so points regarding generic medicine like knowing the similarity between generic and branded medicine in terms of safety and efficacy, accepting or refusing the idea that generics are similar in safety, efficacy and quality with branded alternatives and experience with generic medicine were considered. In addition the study discovered factors that influence generic medicine use.

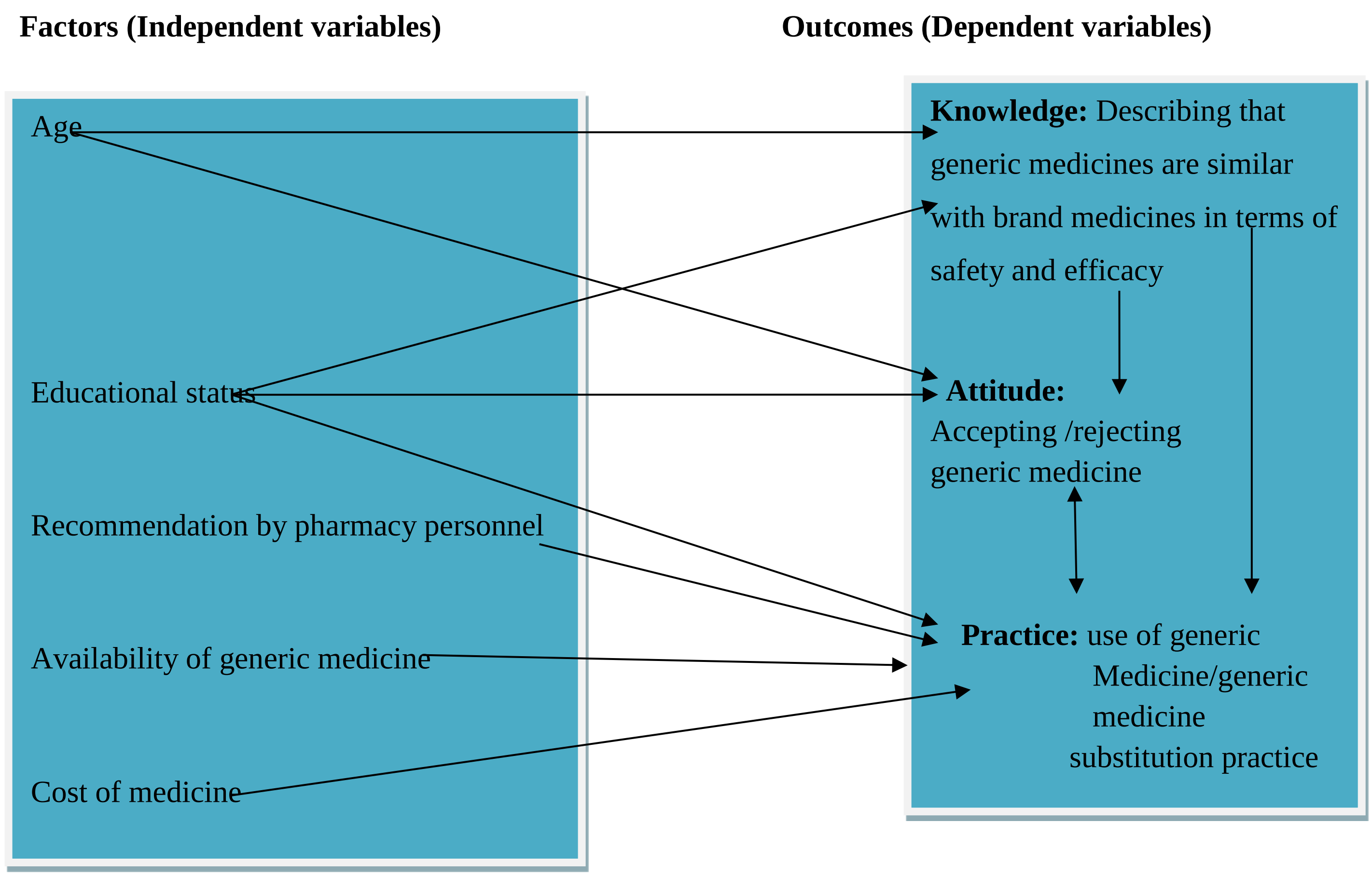


Figure 1: Conceptual frame work of the study

4. Objectives

4.1. General objective

To assess knowledge, attitude and practice on generic medicine among community Pharmacy clients' and pharmacy personnel in Hawassa town, SNNP, Ethiopia.

4.2. Specific Objectives

- ✓ To determine the level of clients' knowledge on generic medicine
- ✓ To investigate the level of pharmacy personnel's knowledge on generic medicine
- ✓ To assess clients' attitude towards generic medicines
- ✓ To assess pharmacy personnel's attitude towards generic medicines
- ✓ To explore clients' practice on generic medicine
- ✓ To investigate pharmacy personnel's practice on generic medicine
- ✓ To identify factors associated with knowledge, attitude and practice of clients on generic medicine

5. Methodology

5.1. Study Area

The study was conducted in Hawassa, the capital city of Southern Nations, Nationalities and Peoples' Regional state (SNNPR) of Ethiopia. Hawassa is located 275 km south of Addis Ababa, and it has a total area of 157.2 KM^2, of which 50 KM^2 is urban. The town is divided into 8 sub-cities and 32 kebeles. Based on 2007 census, it has a total population of 259,803 of whom 133,637 (51.4%) are male and 126,166(48.6%) are female. Of the total population about 159,013 (61.2%) live in town: 81984(51.6%) male & 77,029(48.4%) female (CSA, 2008). The town has 5 hospitals, 8 health centers, 15 health posts,43 clinics, 10 private pharmacies (3 hospital pharmacies & 7 community pharmacies), 56 drug shops and 5 drug venders(reference????).

5.2. Study design

A facility based cross sectional study design was conducted at all community pharmacies of Hawassa. In-depth interview was also conducted with key informants, pharmacy personnel, from different pharmaceutical sectors. The study was conducted from April 2012 to September 2012.

5.3. Population and sampling

5.3.1. Source population

All the population living in Hawassa and all pharmacy personnel working in Hawassa were source population.

5.3.2. Study population

All clients visiting community pharmacies of Hawassa during a study period and all pharmacy personnel working in community pharmacies, hospital, whole sales, health science collage, health bureau and FMHACA of Hawassa were study population.

5.3.3. Study unit

Every other client who visit community pharmacies of Hawassa during the study period and purposively selected key informants from hospitals, community pharmacies, whole sale, Health science collages, health bureau and FMHACA were included as study participants.

5.3.4. Inclusion and exclusion criteria

Inclusion criteria

Community pharmacy clients who:

- ✓ Are 18 years old and above
- ✓ Come to pharmacy during the study period to get medicine for their own use or as messengers
- ✓ Visit community pharmacy on working days (from Monday to Friday; morning between 9 and 12AM and after noon between 2 and 5 PM) during the data collection period and who were willing to participate in the study were included.

Exclusion criteria

Consumers who are:

- ✓ Not volunteer to participate in the study
- ✓ Incapable respondents like seriously sick, with severe mental impairment and unable to response were excluded from the study

5.3.5. Sample size determination

The number of clients to be involved in the study was determined using the single population proportion formula (Lwanga and Lemeshow, 1991)

$$n = \frac{z^2pq}{d^2}$$

Where **n** = desired sample size

Z $_{\alpha/2}$ = Z-score at five level of significance

P= assumed level of knowledge of clients

d= absolute sampling error that can be tolerated

$$n = \frac{(1.96)^2 . 0.5(1-0.5)}{(0.04)^2} = 601$$

The sample size was calculated assuming the level of knowledge about generic medicine to be 50% (0.5), sampling error to be 4 and with 95% confidence interval (1.96). Hence the sample size was calculated to be 601. With the assumption of 10% non-response rate, the number of clients to be involved in the clients' knowledge, attitude and practice survey was determined to be 662. This number was distributed throughout the participating community pharmacies proportionate to the average number of prescriptions filled each day.

5.3.6. Sampling technique

Proportional allocation of the study participants to each community pharmacy were calculated by dividing average number of prescription per day for each pharmacy to total number of prescription per day for all pharmacies. Thus 304 (46%), 152(23%), 61(9%), 61(9%), 47(7%), 37(6%) of clients were interviewed from Alpha, Leben, Betesayida, Kebiron, Addis Hiwot and Chembelala pharmacy respectively.

Pharmacy personnel were selected by purposive sampling technique until saturation of information was reached. When choosing pharmacy personnel; working area, the pharmacy staff's work experience, educational level and employ status were `taken in to consideration to maintain heterogeneity. A total of 10 pharmacy personnel were selected (3 from community pharmacies, 2 from drug shops, 2 from hospital pharmacy,1 from whole sale,1 from FMHACA and 1 from health bureau).

5.4. Study variables

Independent variables: Socio-demographic variables including age, sex, ethnicity, religion, marital status, monthly income and educational level

Dependent variables: Knowledge on generic medicine

Independent variables: Independent variable of knowledge, knowledge on generic medicines, recommendation by physicians, ever use of generic medicine

Dependent variables: attitudes towards generic medicines

Independent variables: socio-demographic variables like age, sex, religion, ethnicity, marital status monthly income, educational level, knowledge on generic medicines, recommendation by physicians, attitudes towards generic medicine

Dependent variables: practice on generic medicines

5.5. Operational definitions

Brand name medicine:

The original (innovator) medicine that is costly as compared to generic medicine.

Generics medicine

A medicine that contain the same active substance as the original brand name medicine and it is of the same safety and effectiveness as the original product.

Knowledge of client

Knowledge: Knowing that generics are similar in safety and effectiveness with branded medicines. Study participant is labeled as knowledgeable if he/she answers at least two out of seven knowledge questions. The questions which must be answered correctly are:

- Effectiveness of generic medicine is the same as branded alternative and
- Safety of generic and branded medicine is similar to brand name medicine

Attitude

Feeling or beliefs of clients or pharmacy personnel about safety, effectiveness and quality of generic medicines. Community pharmacy client is considered as having positive attitude, if he/she answers at least three of the five selected attitude questions as written in the bracket.

- Branded medicines are more effective than generic medicine (strongly disagree or disagree).
- Generic medicine take longer time to give a response(strongly disagree or disagree)
- Generic medicines have more side effects than branded alternatives (strongly disagree or disagree).
- Safety, effectiveness and quality of generic medicines are approved by FMHACA just like branded medicines in Ethiopia(strongly agree or agree).

Practice on generic medicine

Refers to clients experience related to generic medicines use and generic substitution and/or recommendation practice for pharmacy personnel.

5.6. Data collection and management

5.6.1. Data collection techniques and tools

Structured interview guide was used for exit interview to assess clients' knowledge, attitude and practice on generic medicine. The guide was developed after extensive literatures review on knowledge (K), attitude(A) and practice (P) on generic medicine (Al-Gedadi et al., 2008; Igbinovia,2007; Thomas & Vitry, 2009; Babar et al. 2010). Closed ended questions dealing with socio demographic/ economic characteristics of the respondents, their KAP on generic medicine and determinants that affect KAP was used. The questionnaire prepared in English was translated in to Amharic and back translated in to English to maintain consistency of the instrument. Data was collected by 6 pharmacy personnel trained as data collectors.

For qualitative part, semi-structured one-to-one interview guide was used to explore generic medicine related knowledge, attitude and practice on generic medicine. The interview guide was developed after extensive literature search (Nguyen, 2010; Chong et al. 2011; Babar and

Awaisu,2008; Jamshed et al 2010). All interviews were conducted at the participant's office and the interviews were recorded by principal investigator using tape-recorder and transcribed verbatim.

5.6.2. Data Quality assurance

Pretest was done prior to the actual data collection on 34 clients visiting one of community pharmacy that was not included in the study. Based on the findings all the necessary adjustments were made. Some of the amendments are: an Amharic version of generic medicine(**በጽንስ ስም የሚጠሩ መድሃኒቶች**) was changed to cheaper brand of medicine "**መድሃኒትነታች ከዉድ መድሃኒቶች ጋ ተመሳሳይ ሆኖ ዋጋቸዉ ዉድ ያልሆኑ መድሃኒቶች**", because almost all clients did not understand the original translation so the term generic medicine was modified to cheaper brand of medicine.

Additionally on part I, assessing clients knowledge on generic medicine, one new question was added (9. do you know that a given medicine can have different prices, brand name or manufacturing company).Question on clients socio-demographic characteristics were made to come next to the questions on client's knowledge, attitude and practice because most patients were not comfortable to give profile information before creating friendly environment with other questions.

Six data collectors are recruited among pharmacy personnel with experience of data collection. Data collectors were trained, demonstrated and practiced the data collection techniques prior to data collection process.

For an in depth interview, the interview guide was tested for its face and content validity by two experts of research(pharmacoepidemiologists). All the data from key informants was collected by the principal investigator.

5.6.3. Data processing and analysis

For quantitative part, the returned questionnaires of clients have been checked for completeness, cleaned manually and entered in to EPI INFO version 3.5.3 statistical software and then transferred to SPSS windows version 16.0 for further analysis. Frequencies and cross tabulations were used to summarize descriptive statistics of the data and tables and graphs was used for data presentation. Binary logistic regression was used primarily to check which variables have association with the dependent variable individually. Variables found to have association with the dependent variables were then entered in to Multiple Logistic regression model for controlling the possible effect of confounders and finally the variables which have significant association was identified on the basis of OR, with 95%CI and p-value.

To obtain a summary measure of respondents' Knowledge of generic medicine, each knowledge question was coded as a (0, 1) binary variable where category 0 represents incorrect response for that particular knowledge question and category 1 represents correct response for that particular knowledge question. The sum of clients' knowledge on generic medicine then was obtained by adding the responses given for each question and the sum value less than two was categorized as not knowledgeable and the value two was categorized as knowledgeable.

For qualitative part, transcripts were analyzed by the principal investigator for the emergence of themes then it was verified by advisors.

5.7. Ethical Consideration

Before commencing the study ethical clearance was obtained from Ethics Review Committee of the School of Pharmacy, Addis Ababa University. Further an official letter was written from Addis Ababa University to the regional health bureau and community pharmacies of Hawassa to get their permission and cooperation for the study.

The purpose of the study was explained to the participants and verbal consent was obtained. All study participants were informed that they have the right not to answer any of the questions and terminate the interview if they are not comfortable. They were also told that the information collected from this research project would be kept confidential and access would be restricted (i.e. information about the respondent was stored in a file, without their name, but a code number assigned to it) and it was not revealed to anyone except the principal investigator and was kept locked with key.

6. Result

6.1. Findings from community pharmacies clients' survey

6.1.1. Response Rate

Among 662 eligible clients approached for the interview, 626 agreed to participate in the study. But 22 of the respondents were excluded from the study because they discontinued the interview at the middle and/or gave incomplete response. Thus 604 of the clients gave complete information yielding a response rate of 91.2%.

6.1.2. Socio-demographic characteristics of the study participants

Four hundred four (66.9%)of the clients were male. The age range of the participants was 18-78 years with mean age of 32.5 (SD=11.5) and majority of the respondents were in the age group of 18-27, 240 (39.7%). By religion, 309 (51.2%) were protestant followed by orthodox 241 (39.9%) and Muslim 28(4.6%). Most of the respondents were Amhara 151(25.0%), married 365(60.4%), had an educational level of higher education 324(53.6%) and were governmental employees 184(30.5%). Average family income of respondents was 1783 ETB (SD=±1489.68), ranging from 45 to 8000 ETB(Table 1).

Table 1: Socio-demographic characteristics of clients(N=604) in community pharmacies of Hawassa, SNNPR, Ethiopia, 2012.

Socio demographic characteristic		N (%)
Sex	Male	404(66.9)
	Female	200(33.1)
Age	18-27	226(37.4)
	28-37	193(32.0)
	38-47	99(16.4)
	48-57	45(7.5)
	58 and above	41(6.8)
Marital status	Single	231(38.2)
	Married	361(59.8)
	Other	12(2.0)
Religion	Protestant	309(51.2)
	Orthodox	241(39.9)
	Muslim	28(4.6)
	Catholic	16(2.6)
	Other*	10(1.8)
Ethnicity	Amhara	153(25.3)
	Sidama	130 (21.5)
	Wolayita	91 (15.1)
	Gurage	63(10.4)
	Oromo	60(9.9)
	Hadiya	34(5.6)
	Kembata	58(9.6)
	Other **	15(2.5)
Educational level		
	Unable to read and write	13(2.2)
	Read and write only (informal education)	4(0.7)
	Primary education (1-8)	99(16.4)
	Secondary education(9-12)	164(27.2)
	Higher education (Certificate, Diploma, degree & Above)	324(53.6)
Occupation status		
	Government employee	184(30.5)
	Nongovernmental organizations Employee	144(23.8)
	Merchant	107(17.7)
	Student	80(13.2)
	Unemployed	56(9.3)
	Farmer	11(1.8)
	Retired	6(1.0)
	Other ***	16(2.7)
Family income per month		
	Less than 420 birr	67(11.1)
	420 to 840	138(22.8)
	841 to 1260	100(16.6)
	Greater than 1260	299(49.5)

* Apostle, no religion, Jehovah's Witnesses ** Tigre,Silite,Kefa
***Contractor, Carpenter, House Servant

6.1.3. Clients' preference of a particular country's

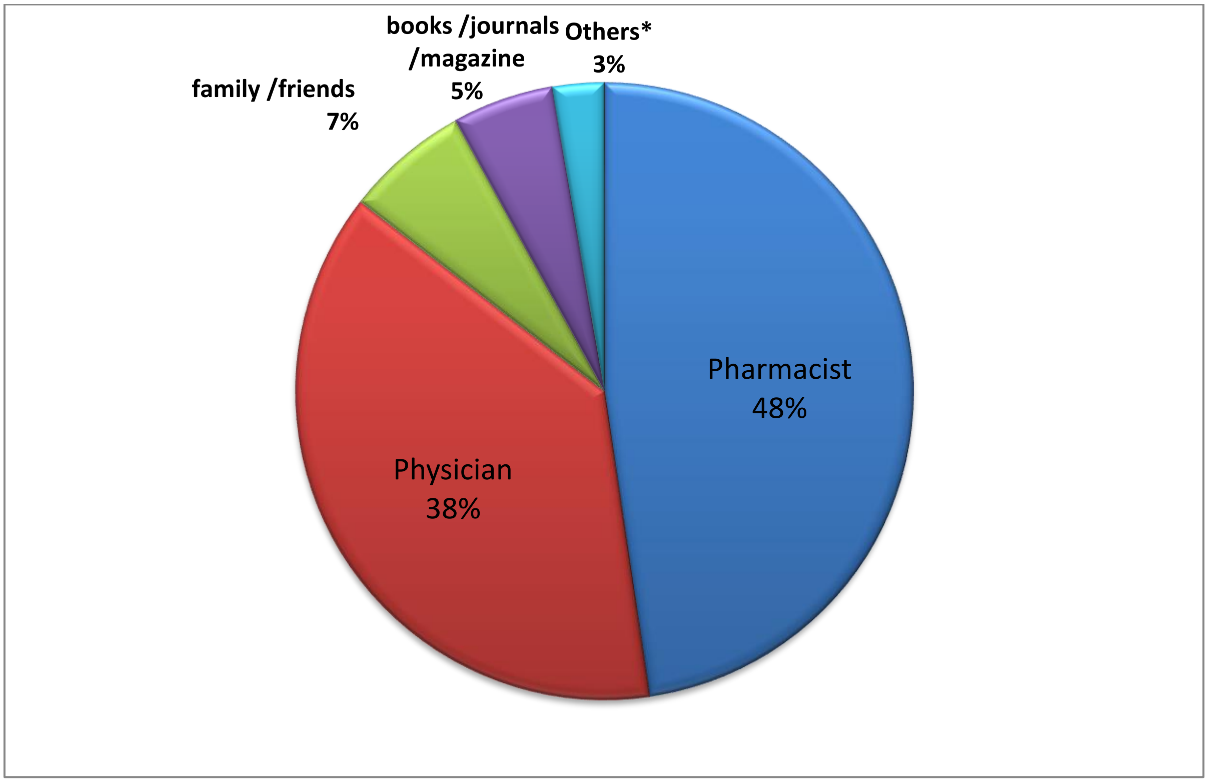
Among 604 respondents, 463(76.7%) have a preference for a particular country's product. Three hundred twenty eight (70.2%) of the participants like imported products better. Majority of the clients 266(81.8%) prefer medicine produced in Germany. Different reasons were mentioned for preferring a particular country's product. The most common reasons were effectiveness for Germany's products, lower cost for an India product and my doctors know best about medicine for whatever prescribed (Table 2).

Table 2: Client's preference of a particular country's product in community pharmacies of Hawassa, SNNPR, Ethiopia, 2012.

Characteristic	N (%)
Preference for a particular country's product?	
Yes	463(76.7)
No(whatever prescribed)	141(23.3)
Total	604(100)
Which product do you prefer more?	
Local	135(29.2)
Imported	328(70.8)
Total	463(100)
From imported products which country's product do you prefer most?	
Germany	266(81.1)
India	39(11.9)
China	6(1.8)
England	10(3.1)
Korea	7(2.0)
Total	328(100)
Reason for preferring a particular country's product:	
Germany's product	
Effective	162(60.9)
Safe	78(29.3)
Recommended by physician	40(15.0)
Recommended by pharmacist	22(8.2)
local product	
Effective	62(71.2)
Cheaper	47(54.0)
Safe	20(23.0)
Recommended by pharmacist	6(7.0)
India product	
Lower cost	
Better availability	4(66.7)
England product	2(33.3)
Effective	7(70)
Safe	3(30)
Korea's product	
Effective	4(57)
Safe	3(43)

6.1.4. Knowledge of clients on Generic medicine

The main information sources about medicine reported by participants were pharmacists 384 (63.6%) followed by physicians 271 (44.8%)(Figure 3).



**** Other health care professionals, mass media***

Percent may exceed 100% as multiple answers are possible

Figure 2: Information source about medicine in community pharmacies of Hawassa, SNNPR, 2012.

Among 426 (70.5%) participants who had heard of generic medicines, 226 (53.1%) said that generics are less effective than brand alternatives while 184(43.2%) said generics are as effective as brand name medicines (Table 3).

Regarding safety 175 (41.1%) of the respondents identified that generics are similar in safety with branded alternatives but 149 (35.5%) stated that generics cause more side effects (Table 3).

Table 3: Respondents' knowledge on generic medicines in community pharmacies in Hawassa, Ethiopia, 2012.

Characteristic	N (%)
Have you ever heard of generic medicine?	
Yes	426(70.5)
No	178(29.5)
Information source regarding medicines?	
Pharmacist	288(47.7)
Physician	229(37.9)
Family/ Friends	39(6.5)
Books/journals/magazines	32(5.3)
Other health professionals/ mass media	16(2.7)
Total	604(100)
Effectiveness of generic medicines:	
Better than brand alternatives	13(3.1)
The same as brand alternatives	184(43.2)
Less than brand alternatives	226(53.1)
I don't know	3(0.7)
Total	426(100)
Side effects of generic medicines:	
Better than brand alternatives	48(11.3)
The same as brand alternatives	175(41.0)
Worse than brand alternatives	149(35.0)
I don't know	54(12.7)
Total	426(100)

In general only 135(22.4%) of the participants were knowledgeable about generic medicine because they answered at least two out of seven knowledge questions but 469 (77.6%) were not knowledgeable.

6.1.5. Community pharmacy clients' attitude toward generic medicines

About half 305 (50.5%) of the clients perceived that branded medicines are more effective than generic medicine. Similarly 312 (51.6%) of the respondents stated that generic medicines take longer time to give response than branded alternatives. Concerning side effects, 200 (33.1%) of the participants considered that generic medicines cause more side effects than branded alternatives. Concerning the approval system, 218 (36.1%) of the participants had distrust on generic medicine approval system in Ethiopia (Table4).

From the total participants who answered to the five selected attitude questions, 194 (32.1%) have positive attitude towards generic medicines, the rest 410 (67.9%) of respondents had negative attitude.

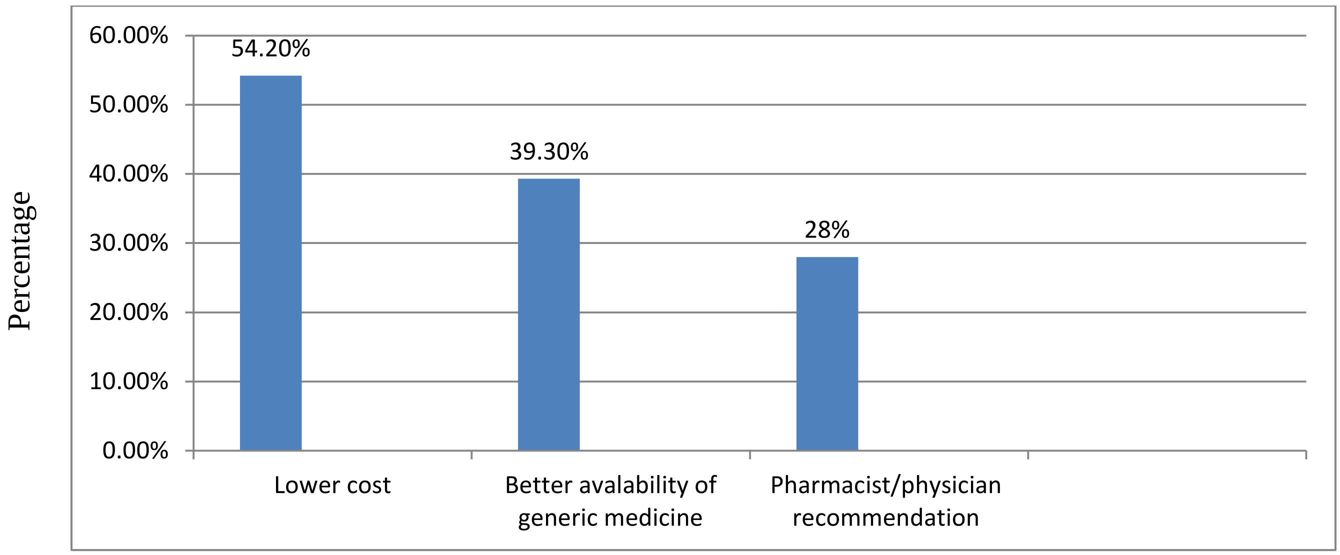
Table 4: Clients' response to five point Likert scale questions exploring attitudes on generic medicines in Hawassa, Ethiopia, 2012.bv

Survey questions/statement	Frequency (n (%))				
	SA	A	N	D	SD
Brand medicines are more effective than generic medicine	124(20.5)	181(30.0)	25(4.1)	210(34.8)	64(10.6)
Generic medicine take longer time to give a response	86(14.2)	226(37.4)	29(4.8)	216(35.8)	47(7.8)
Generic medicines cause more side effects than brand name medicine	46(7.6)	154(25.5)	101(16.7)	231(38.2)	72(11.9)
Safety, efficacy and quality of generic medicines are approved by FMHACA just like generic medicine in Ethiopia	1(0.2)	178(29.5)	207(34.3)	135(22.4)	83(13.7)

SA-strongly agree, A-Agree ,N- Neutral ,D- Disagree, SD- strongly disagree.

6.1.6. Generic medicine use

Majority 437 (72.4%) of the clients reported that they had ever used generic medicines, 159 (26.3%) had never used and the remaining 8 (1.3%) didn't remember if they had used or not. Among the common reasons to use generic medicines were lower cost 237 (54.2%), better availability 171 (39.3%) and pharmacist/physician recommendations122 (28 %)(Figure 4).



Percent may exceed 100% as multiple answers are possible

Figure 3: Clients' reasons to use generic medicine in community pharmacies in Hawassa, Ethiopia,2012.

Among 437 (72.4%) clients who had used generic medicines, 211 (48.3%) stated that generic medicine they had used were effective but 144 (33.0%) said that generics they used before was not effective and prefer the branded alternatives.

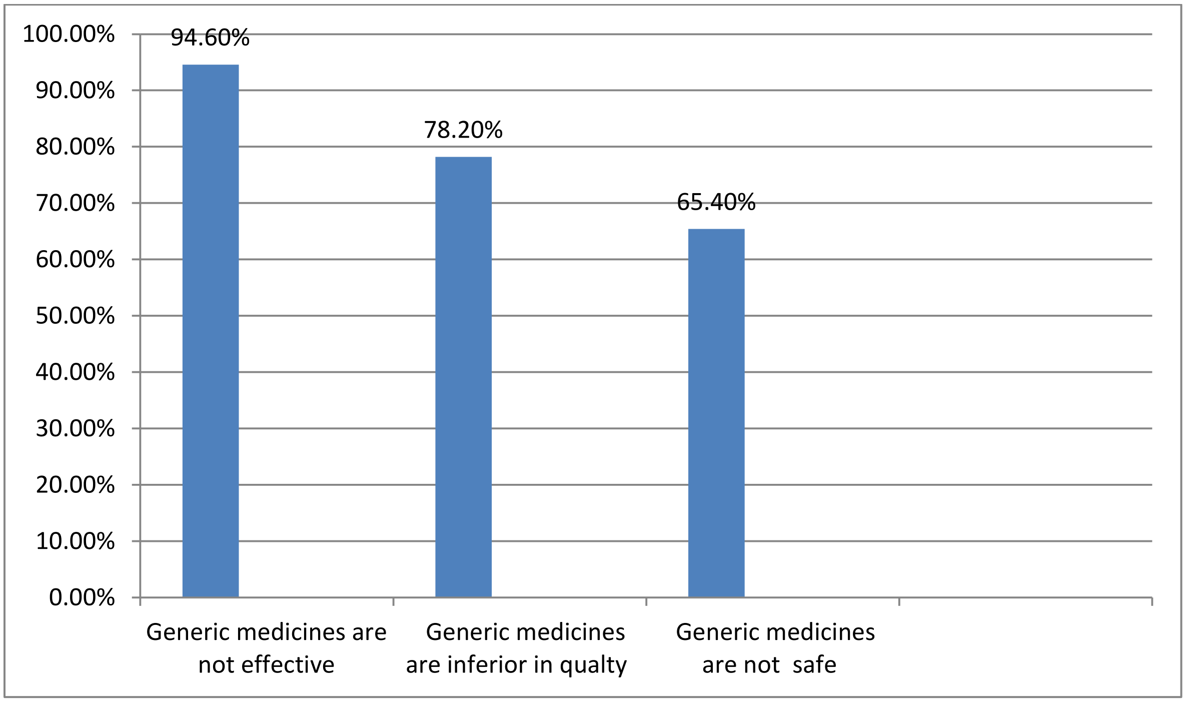
When clients were interviewed either pharmacy personnel had ever recommended them to switch to a generic medicine from branded alternatives, majority said "yes" 341 (56.5%) but among these respondents only 149 (43.7%) had followed the advice. Majority 78 (46.7%) of clients who had never used or did not remember if they had used generics are not willing to use them in the future (Table5).

Table 5: Community pharmacy clients' practice on generic medicine, Hawassa, Ethiopia, 2012.

Characteristics	N (%)
Ever used generic medicine?	
Yes	437(72.4)
No	159(26.3)
I don't remember	8(1.3)
Reason for using generic medicines?	
It was effective	237(54.2)
It is cheaper than brand alternatives	171(39.1)
Recommended by pharmacist /physician	122(27.9)
Better availability of generic medicines	45(10.3)
Opinion with generic medicine from past experience?	
Are effective as brand alternatives	211(48.3)
It was not effective so I prefer the brand alternatives	144(33.0)
Generic medicines should not be substituted for serious conditions	167(30.4)
Generics are more effective than brand alternative	7(1.6)
Recommendation from pharmacy personnel to switch to a generic medicine from branded alternatives?	
Yes	341(56.5)
No	248(41.1)
I do not remember	15(2.5)
Did you follow their advice?	
Yes	149(43.7)
Sometimes	117(34.3)
No	72(21.1)
I do not remember	3(0.9)
Willingness to use generic medicine in the future if they had never been used?	
Yes	78(46.7)
No	32(19.2)
I am not sure	57(34.1)

percent may exceed 100% as multiple answers are possible

Among the major reasons for unwillingness to try generics in the future was feeling that generic medicines is not effective as the original medicine (Figure 5).



Percent may exceed 100% as multiple answers are possible

Figure 4: Reasons for not using generic medicines in the future among community pharmacies' clients in Hawassa, SNNPR, Ethiopia, 2012.

6.1.7. Factors affecting knowledge on generic medicines

Bivariate statistical analysis has been conducted to identify socio demographic factors that are associated with respondent's knowledge on generic medicine. A significant difference on the knowledge of respondents among different age groups and educational level was observed when adjusted with other socio demographic variables. Clients with higher education level were 4.96 times more knowledgeable than primary and below primary education level counterparts [AOR= 4.96, 95% CI(2.29-8.76), P<0.001]. Respondents with in middle age group (38-47) were 3.73 more likely to be knowledgeable than the respondent aged 58 or more. Other socio demographic variables like sex, marital status, ethnicity, religion, occupation and family income were not found significantly associated with clients' knowledge on generic medicines (Table 6).

Table 6: Association of socio-demographic characters with knowledge of clients in community pharmacies of Hawassa, 2012.

Variables	Knowledge on generic medicine		Crude OR (95% CI)	Adjusted OR (95% CI)
	Yes	No		
Sex				
Male	81(13.4%)	323(53.5%)	1.48(0.99 -2.19)	1.45(0.44-2.22)
Female	54(8.9%)	146(24.2%)	1	1
Age				
18-27	36(6.0%)	190(31.5%)	0.92(0.38-2.24)	0.98(0.4-2.4)
28-37	40(6.60%)	153(25.3%)	1.27(0.82-3.07)	1.64(0.67-4.02)
38-47	43(7.1%)	56(9.3%)	3.73(1.51-6.22)*	3.89(1.56-6.69)*
48-57	9(1.5%)	36(6.0%)	1.21(0.41-3.62)	1.35(0.45-4.06)
≥58	7(1.2%)	34(5.6%)	1	
Marital status				
Unmarried	60(9.9%)	183(30.3%)	1.25(0.85-1.84)	1.30(0.85-1.96)
Married	75(12.4%)	286(47.4%)	1	1
Religion				
Orthodox	52(8.6%)	189(31.3%)	1	1
Catholic	13(2.2%)	3(0.0%)	0.84(0.23-3.05)	0.73(0.19-2.82)
Protestant	69(11.4%)	237(39.2%)	1.06(0.70-1.59)	1.20(0.76-1.85)
Muslim	8(1.3%)	22(3.6%)	1.32(0.56-3.14)	1.40(0.54-3.6)
Other	3(0.5)	8(1.3)	1.36(0.35-5.32)	0.87(0.20-3.73)
Educational level				
Primary & below	8(1.3)	108(17.9)	1	1
Secondary education	39(6.5)	125(20.7)	4.2(2.00-7.40)*	3.47(1.52-5.93)*
Higher education	88(14.6)	236(8.9)	5.03(2.40-8.75)*	4.96(2.29-8.76)*
Family income/ month				
Less than 420	13(2.2%)	54(9.9%)	1	1
421 to 840	29(4.8%)	109(18.0%)	1.05(0.53-2.30)	1.05(0.49-2.25)
841 to 1260	25(4.1%)	75(12.4)	1.40(0.65-2.95)	1.42(0.64-3.17)
> 1260	68(11.3%)	231(38.2%)	1.22(0.63-2.37)	1.20(0.59-2.44)

** Statistically significant*

6.1.8. Factors affecting attitude towards generic medicines

As shown in table 7, educational level, age, knowledge and past experience with generic medicine were found to be associated with clients' attitude towards generic medicines. In this regard more educated clients(with higher educational level) were more likely to have positive attitude towards generic medicine [AOR= 6.83, 95% CI(3.05-10.32), P=0.001]. Similarly respondents with better knowledge about generic medicine and who had previously used generic medicine showed a positive attitude. Clients aged 38-47 years were shown to have positive attitude than those aged 58 or more. Other socio demographic variables like marital status, religion, ethnicity, occupation, family income were not found significantly associated with attitude of clients towards generic medicine (Table 7).

Table 7: Factors associated with attitude of clients' towards generic medicine, Community Pharmacy, Hawassa, SNNPR, Ethiopia,2012.

Variables	**Attitude towards generic medicine, N=604**		**Crude OR (95% CI)**	**Adjusted OR (95% CI)**
	Positive	**Negative**		
Sex				
Male	123(20.4%)	281(46.5%)	1	1
Female	71(11.8%)	129(21.4%)	1.28(0.88-1.86)	1.47(0.93-2.33)
Age				
18-27	35(5.8%)	191(31.6%)	0.59(0.27-1.30)	0.58(0.25-1.34)
28-37	36(6.0%)	157(26.0%)	0.69(0.30-1.53)	0.83(0.35-1.93)
38-47	22(3.6%)	77(12.7%)	11.51(4.87-15.22)*	12.53(4.32-18.36)*
48-57	10(1.7%)	35(5.8%)	10.85(4.00-14.52)*	10.90(3.83-15.39)*
58+	11(1.8%)	30(5.0%)	1	1
Marital status				
Unmarried	86(14.2%)	157(26.0%)	1.32(0.94-1.87)	1.26(0.82-1.96)
Married	108(17.9%)	253(41.9%)	1	1
Educational level				
Primary & below primary	12(2.0)	104(17.2)	1	1
Secondary	72(11.9)	92(15.2)	4.52(2.38-6.56)*	3.47(2.60-6.47)*
Higher education	110(18.2)	214(35.4)	6.62(3.38-8.96)*	6.83(3.05-10.32)*
Clients' knowledge on generic medicine				
Not knowledgeable	119(19.7)	350(58.0)	1	1
Knowledgeable	75(12.4)	60(9.9)	2.26(1.52-3.34)*	3.41(2.00-5.8)*
Experience on generic medicine				
Yes	165(27.3)	272(45.0)	3.2(2.04-5.05)*	3.51(2.05-6.01)*
No	29(4.8)	138(22.8)	1	1

** Statistically significant*

6.1.9. Factors associated with the use of generic medicine

The use of generic medicine was found to be significantly associated with educational level, knowledge, attitude of users and recommendation from pharmacy personnel. Respondents with higher education were about 12 times more likely to use generics than clients' with primary and below primary education level [AOR=12.01, 95%CI(5.63-15.73), P <0.001]. Knowledge on generic medicine was shown to increase the use of generic medicine by 1.6[AOR= 1.56, 95% CI(1.08-2.45), P<0.001]. Participants with positive attitude towards generic medicines are about 5 times more likely to use generic medicines [AOR= 5.10, 95% CI(3.11-8.35), P<0.001]. Recommendation from pharmacy personnel also showed an association with generic medicine use: those clients who were informed about generic medicine were 1.8 times more likely to use generic medicine than non informed clients [AOR=1.84, 95% CI(1.25-2.72), P=0.002] Other socio demographic variables like marital status, religion, age, ethnicity, occupation, family income were not found significantly associated with community pharmacy clients' practice on generic medicine (Table 8).

Table 8: Factors associated with the use of generic medicine by clients', Community pharmacy, Hawassa, SNNPR, Ethiopia, 2012.

Variables	Clients' practice on generic medicine, N=604		Crude OR (95% CI)	Adjusted OR (95% CI)
	Yes	No		
Sex				
Male	299(49.5%)	105(17.4%)	1	1
Female	138(22.8%)	62(10.3%)	1.28(0.88-1.86)	0.72(0.48-1.09)
Marital status				
Unmarried	173(28.6%)	70(11.6%)	1.11(0.77-1.58)	0.96(0.64-1.44)
Married	264(43.7%)	97(16.1%)	1	1
Educational level				
Primary & below	25(4.1)	91(15.1)	1	1
primary	50(8.3)	114(18.9)	4.80(2.32-7.85)*	6.00(3.84-9.41)*
Grade 9-12	119(19.7)	205(33.9)	7.81(3.70-10.50)*	12.01(5.63-15.73)*
Higher education				
Clients' knowledge on generic medicine				
Not knowledgeable	310(51.32)	159(26.32)	1	1
Knowledgeable	127(21.02)	8(1.32)	1.50(1.01-2.15)*	1.56(1.08-2.45)*
Attitude towards generic medicine				
Yes	168(27.8)	26(4.3)	3.21(2.04-5.05)*	5.10(3.11-8.35)*
No	269(44.5)	141(23.3)	1	1
Recommendation by pharmacy personnel				
Yes	267(44.2)	74(12.3)	1.98(1.38-2.83)*	1.84(1.25-2.72)*
No	170(28.1)	93(15.4)	1	1

**Statistically significant*

6.2. Findings of key informant interviews

6.2.1. Socio-demographic characteristics of key informants

Ten key informant interviews were conducted among pharmacy personnel drawn from different pharmaceutical sectors in Hawassa. The age of key informants' ranges from 24 to 46 years. And among ten key informants only one was female. Regarding educational level, majority (seven) of the participants had Bachelor of Pharmacy qualification. Two of the participants were owners of a pharmacy and the remaining eight were employees in different pharmaceutical sectors (Table9)

Table 9: Socio-demographic characteristics of pharmacy personnel working in different pharmaceutical sectors of Hawassa, SNNPR, Ethiopia, 2012.

Socio demographic characteristic	Number(%)
Sex	
Male	9(90.0)
Female	1(10.0)
Age	
24-28	4(40.0)
29-33	2(20.0)
34-38	2(20.0)
≥39	2(20.0)
Marital status	
Single	6(60.0)
Married	4(40.0)
Educational level in Pharmacy	
Pharmacist	7(70.0)
Pharmacy technician	3(30.0)
Employee status	
Employee	8(80.0)
Owner	2(20.0)
Place of work	
Whole sale	2(20.0)
Community pharmacy	3(30.0)
Governmental hospital pharmacy	2(20.0)
Others*	4(40.0)

* FMHACA, Drug shop, Health bureau & Health science collage.

Thematic content analysis of the interviews identified five major themes: knowledge on generic medicines, attitude towards generic medicines, confidences on generic medicine approval system of FMHACA, experience with generic medicine substitution and factors that affect clients' generic medicine use.

Theme 1:Knowledge on generic medicines

When the pharmacy personnel were interviewed about their understanding of generic medicines, most of the participants explained generic medicine with different terms: manufactured by different companies after patent expiry of branded medicines, less costly than branded medicines, prescribed and dispensed by chemical name, alternative to brand name medicines and equivalent to brand name medicine. The most common phrases used were less costy and equivalent to brand name medicine'. One of the respondents stated that:

"Generic medicines can be manufactured by different companies after patent expiry of innovator company. Such medicine is less costly than original or brand name medicine." (Pp1,pharmacy personnel one)

Two out of ten respondents demonstrated their limited knowledge by equating generic medicine to chemical name:

"Generic medicines are prescribed and dispensed by chemical name of the drug." (Pp4)

To explore more on the understanding of the participants, they were asked about the difference between generic and brand name medicines. Almost all of the respondents stated that generic and branded medicines are similar in active ingredient and therapeutic use but differs in cost and additive. But two participant said that in addition to cost there is safety, efficacy and/ quality difference. They mentioned additive difference as a reason for difference:

"Generic and brand name medicines differ in cost, safety, effectiveness and quality. Such medicines are less costly and sub standard products."(PP5)

Theme 2: Attitude towards generic medicine

Based on guiding question developed for an in-depth interview, participants attitude towards safety, effectiveness and quality of generic medicine was assessed.

Safety

Most (seven out of ten) of the respondents believe that a medicine approved as generic equivalent are as safe as brand name alternatives. The most common reasons given was similarity in active ingredient: they stated that safety of medicine depends on active ingredient composition.

Conversely few (three out of ten) of the participants lack confidence on the safety of generic medicine. According to those respondents, generic medicine manufacturers use inferior quality additives that result in lower safety:

"I think generic medicines cause more side effects than branded alternatives because generic manufacturing companies are allowed to use different additive from original product and this helps them to use less costly sub standard additive."(pp3)

Effectiveness

About half(five out of ten) of the participants believe on the effectiveness of generic medicine and they provided different reasons: generic medicine satisfies the minimum effectiveness requirements; effectiveness of medicine depends on active ingredient; both generic and brand medicine pass through similar quality approval system of FMHACA and Generic medicine has bioavailability within the acceptable range.

On the other hand, few (three/ten) of the participants pointed out that most imported generics are less effective:

"It is difficult to generalize all generics in one category. For instance local products are effective but generics from abroad are lower in efficacy than brand alternatives."(pp3)

Similarly two of the participants believe that generic are less effective than brand alternatives due to additive difference which results in bioavailability difference.

Quality

Around half of the respondents explained that both generic and brand name medicines are similar in quality because the government drug regulatory body applies the same quality control criteria to both generic and brand name medicine. However few (two) of the participants thought that generics are inferior in quality. The reasons mentioned was generic medicine manufacturers use cheaper additives with lower quality.

On the contrary, three participant stated that it is difficult to generalize all generics in one, they pointed out that there are generic manufacturers that produce superior, equal or inferior quality products:

"Quality of the product is not related to generic or brand but the company status that manufacture it. For instance Cyprus generics are even superior to brand alternatives." (pp10)

Theme 3: Confidence on the generic medicine quality approval system of Ethiopia

A Likert-type scale of 1–3 was used to assess the pharmacy personnel's confidence on the generic products approval system of Ethiopia. 30 percent had low confidence, 10 percent had moderate confidence and 60 percent had high confidence on generic medicine quality approval system of the country with regards to bioequivalence, quality and safety.

Most of the participants, with high confidence on quality control system, related the issue with the authorities mandate.

"Protecting the public from inferior quality medicine is the mandate of government. Therefore I believe that FMHACA is strictly controlling any medicines before releasing into the market." (Pp10)

But one of the respondents related the issue with post marketing surveillance(PMS). He pointed out that due to financial constraint PMS is not addressing all types of medicines in the market and this may give chance for some companies to import sub standard medicine.

"The quality, safety and efficacy of all medicines is insured before registration but once the product pass this step it can be imported for five years without other quality assurance procedure. This may give a chance to import substandard medicines. Therefore I am highly confident on quality control system prior to marketing but the problem is related to PMS, the system is not addressing all medicines on the market."(Pp9)

All respondents with low confidence on quality control system of the country developed un trust due to therapeutic failure complaints from clients and prescribers. They associated therapeutic failure/ no response of generic medicine with quality control system of the country.

Theme 4: Experience related to generic medicine substitution/ dispensing practice

When interviewing pharmacy personnel about experience on generic medicine substitution/ dispensing practice all but two stated that clients belief that cheaper brand of medicine are in efficacious or /and inferior quality products and they prefer brand name medicines.

"Most patients are confused with counterfeit and generic medicines, they think generics as counterfeit products and they are not willing to take it unless they are unable to afford brand name alternatives." (pp2)

Some participants explained that in addition to clients prescribers show distrust on generic medicines:

"Not only clients even some health care professionals have doubt on safety, efficacy and quality of generic products."(pp9)

Theme 4: Factors affecting generic medicine use

The interviews revealed that affordability, better availability, type of illness, experience of patients with generic medicine, prescribers and/or dispensers influence, and lack of confidence on safety, effectiveness and quality of generic medicines as the main factors that affect generic medicine use.

Cost was identified as the major reason for acceptance of generic medicine Apart to the cost, availability of generic medicine/ unavailability of branded alternatives was mentioned as a factor that promote generic medicine use by clients.

Some of the respondents pointed out that types of illness affects consumers decision. Most patients with chronic illness prefers brand name medicine while for minor case they accept generic alternative. Consumers' experience with generic medicine was also identified as a factor. patients with positive experience prefers using generic alternatives.

As respondents prescribers and dispensers inclination to brand name medicines was identified as a barrier to accept generic medicine by clients:

"Most prescribers prefer prescribing brand name medicine and clients in turn stick to the prescribed medicine. Since most clients think physicians know best about medicines, they resist generic substitution once brands are ordered." (Pp10)

Participants stated that some clients have no trust on developing countries products: they feel all developed countries products weather generic or brand as superior in quality and other countries products ineffective or unsafe.

"Most clients relates quality/efficacy of medicine with the development level of the country majority of them relate European product with high quality and non Europe product with inferior quality there for they accept any type of medicines produced in Europe."(Pp10)

7. Discussion

This study attempted to assess knowledge, attitude and practice on generic medicine, and associated factors among community pharmacy clients' and pharmacy personnel in Hawassa.

Our study investigated clients' preference of medicine based on the manufacturing country and the result showed that nearly half (81.8%) of the respondents preferred Germany products the reason given was its effectiveness. This idea was supplemented by pharmacy personnel's response. Some pharmacy personnel said that most of the clients have un trust on developing countries' products because clients feel all developed countries products weather generic or brand as superior in safety and effectiveness. This finding is in line with the previous study conducted in Iraq which indicated that consumers generally held positive attitudes toward the efficacy and safety of generic medicines imported from European (Sharrad & Hassali, 2011).

The qualitative part of the present study showed that most pharmacy professionals showed good understanding of the term generic medicines. Almost all except two explained the difference between generic and branded alternatives correctly. This finding mirrors that of Jamshed et al. (2010) study amongst community pharmacists in Karachi, Pakistan where community pharmacist showed a good understanding of generic medicines.

One of the important factors for successful generic substitution is patients' understanding of the generics medicine and trust that generics are products with the same efficacy, safety and quality as brand name drugs and not only cheaper alternative to brand name drugs (Babar et al., 2010). In the present study, 226 (53.1%) of the clients said that generics are less effective than brand alternatives and 149 (35.5%) stated that generics produce more side effects than branded alternatives. The findings from this study had shown that clients in Hawassa are relatively less knowledgeable about generic medicines compared to their counterparts in Brazil and Germany.63% the clients in German and 70% of the clients in Brazil knew that generic medicines were cheaper brand of medicine and equivalent alternative to a branded medicine (Himmel et al., 2005; Bertoldi et al., 2005).

The present study shows that clients' main source of information about medicine was pharmacists followed by physician. Similarly Babar et al.,(2010) and Al-Gedadi et al., (2008) reported that most respondents get medicine information from pharmacists followed by physician.

In our study only one in three (32.1%) of the community pharmacy clients were with positive attitude towards generic medicines: less than half (45.5%) of the clients perceived that generic medicine to be effective as brand name medicine. This concurs with the findings of Babar et al.,(2010) survey which found that less than half of the study participants in Auckland consider that generic medicines are effective as branded alternatives. On the other hand 66.7% of the study participants in Germany consider that generic medicines are as effective as branded alternatives (Himmel et al. 2005).

According to three in ten of the pharmacy personnel interviewed in the present study, imported generics are less effective than branded alternatives but local generics are as effective as or even more effective than branded alternatives. This idea was shared by clients that is most clients (29.2%) preferred Ethiopian medicine than an Indian(11.9%) or Chinese (1.8%) medicine.

Concerning side effects our study documents that 200 (33.1%) of the clients considered that generic medicines cause more side effects than branded alternatives. Similarly a cross sectional survey conducted in Penang Malaysia indicated that 31.2% of the clients felt that generic medicines cause more side effects than brand name medicine(Al-Gedadi et al., 2008).

Nearly half of the key informants in the present study believe that generic medicines are inferior in safety and quality to innovator brands. The reasons described were therapeutic failure report from clients and use of low quality additives by generic manufacturers. Inconsistently Jamshed et al. (2010) explored that none of the community pharmacists in cited negative concerns for generic medicines in Karachi, Pakistan. There may be two reasons for such concerns of pharmacy personnel in Hawassa: lack of understanding about the concept of bioequivalence that is a generic product proven as bioequivalent is capable of delivering the active ingredient to the blood stream at the same rate and to the same extent as the innovator brand. Thus clinical safety and efficacy profile of generic medicines will be similar to that of branded alternatives (Pearce et al, 2004). The second reason for negative attitude may be pharmacy personnel's concern on registration process or generic medicine approval system of Ethiopia.

Concerning the generic approval system our study showed that one in three(30%) of the surveyed pharmacy personnel had low confidence on generic medicine approval system in Ethiopia. Those participants developed mistrust based on therapeutic failure complaints from clients and prescribers. Gossell-Williams & Harriott (2007) also reported that the majority of pharmacist in Jamaica indicated lack of confidence on generics, based mainly on feedback from patients. In contrast only (8.3%) community pharmacist in Malaysia showed distrust in generic products approval system in Malaysia with regards to bioequivalence, quality and safety (Babar and Awaisu, 2008).

The present study indicated that almost three out of four (72.4%) clients reported that they had ever used generic medicines. Lower cost and better availability of generic medicines were among the common reasons to use generic medicines. Key informants also mentioned that cost and better availability of generic medicine as a factor that promote generic medicine use. Correspondingly, community pharmacy clients interviewed in Australia and Iraq claimed that the main reason for accepting generic medicines was their price and better availability of generic medicine (Hassali et. al.,2005;Sharrad & Hassali, 2011).

Nearly half 211(48.3) of community pharmacy clients in Hawassa who had tried generic medicines reported a positive experience. This result is inconsistent with Thomas &Vitry (2009) finding where four in five(79%) of the respondents surveyed in Malaysia felt that the generic medicine they had used worked well and/or was the same as the branded alternatives but different clinical studies showed that the safety and effectiveness of generic medicine are similar: a systematic review of clinical evidence studies has shown that generic and brand name cardio-vascular drugs were similar for nearly all clinical outcomes. This study concluded that there is no evidence of safety and efficacy superiority of brand preparations to generic drugs (Kesselheim, 2008). Another comparative study evaluating the price and quality of "branded" and generic equivalents of five commonly used medicines manufactured by the same pharmaceutical company in India found that both the branded and generic versions of the five "paired" medicines had identical quality and they fulfilled all the criteria prescribed by the authority standards (Singal et al. ,2011)

The present study revealed that less than less than half(43.7%) of the respondents who were recommended by pharmacist to switch to generic alternatives had followed the advice. This finding is lower than the findings of the study in Auckland where approximately three in four (76%) participants were willing to switch to a generic upon recommendation from their pharmacist (Babar et al., 2011). This difference can be explained by clients trust on their prescribers that is if once medicines are prescribed in branded alternatives they do not want to change it.

Among clients who had not used or did not remember if they had used generics nearly half (46.7%) declared that they do not want to use in the future. The reason mentioned was considering generics as not safe, effective and quality as branded alternatives. This finding is consistent with Thomas and Vitry (2009) finding where over one in two (55%) respondents were unwilling to use generic medicines in future. This negative perception of generic medicines among non-users may be due to lack of experience with generics and/or poor knowledge on generic medicine. Consumers who had had an experience with generic medicines generally had a more positive perception on generic medicine (Himmel et al. 2005).

Regarding factors affecting the knowledge, attitude and practice on generic medicine, our study investigated that clients with higher education and in the middle age group (38-47) were more knowledgeable than clients with primary or below primary education level and older groups respectively. The importance of educational on knowledge of generic medicine has been described in different studies: Babar et al., (2011) showed an association of education and age with participants correct knowledge of generic medicines, with the older and less educated having poorer knowledge. Himmel et al. (2005) also indicated that education had influence on the knowledge of the difference between generic and brand-name products. The significant associations with highest education and in the middle age group are expected as middle aged and more educated people spend more time on reading and are with better health seeking behavior thus exposing the person more to issues surrounding medicines.

The result of the present study showed that clients with higher education, better knowledge, previous experiences on generic medicines an middle aged category (38-47) had a positive attitude towards generic medicines. Likewise a study that was conducted in Germany found that experience with generic medicines as well as a higher education were a barrier to negative attitudes towards generic medicine (Himmel et al., 2005). Palagyi & Lassanova (2008) also indicated that clients who consider generics as equivalent to branded alternatives had positive attitude towards generic medicines.

The finding from the current study reveaed an association of educational level, knowledge, attitude and pharmacy personnel recommendation with the use of generic medicine. Similar results have been obtained from other researches: Babar et al., (2011), in his study in Auckland, indicated that those with higher education status and with better knowledge were more likely to use generic medicines. A study conducted in Slovakia by Palagyi & Lassanova (2008) also indicated an association of clients attitude and pharmacists recommendation with the use of generic medicine: clients with no distrust on generic medicine were more likely to use generic medicine and clients recommended by pharmacist were more likely to use generic medicines.

8. Limitations of the study

Clients from public pharmacies were not included. Different results might have been obtained when questioning patients from public pharmacies who are exclusively given generic medicines.

The study was carried out inside pharmacies; therefore, potential participants were only those who came inside community pharmacies during the normal working hours of week days. The proportion of people who have knowledge, attitude and practice of generics may differ from what this study found due to excluding those clients who do not usually visiting community pharmacies or who visit the community pharmacies in the night or weekends.

9. Conclusion

From this finding it is possible to conclude that consumer's knowledge of generic medicine was very low while pharmacy personnel had good knowledge of generic medicines. Generally clients had a negative attitude regarding generic medicine. It was felt that generics were less effective, and cause more side effects. This view was shared by few pharmacy personnel too. However both pharmacy personnel and clients had positive attitude for domestic generics. Approximately one in three of the pharmacy personnel and community pharmacy client had distrust on generic medicine approval system in Ethiopia. Most clients had used generic medicine and the main reasons for using generic medicine were lower cost and suggestion from healthcare providers. Nearly half of the clients who had used generic medicines in the past believe that generic medicine they had used were as effective as branded alternatives. Age and educational status were shown to be significant predictors of knowledge. Age, educational status, experience with generic medicines had a strong and positive association with attitude. The use of generic medicine was found to be significantly associated with educational level , knowledge, attitude and recommendation from pharmacy professionals.

10. Recommendation

Concerned bodies should provide public education about generic medication to fill knowledge gap and to enable clients to undertake an informed decision in choosing either generic medicine or branded alternative.

The generic policy implementation should be strengthened by introducing incentives for pharmacy personnel and prescribers to prescribe and dispense generics.

FMHACA should provide education, training and clear guideline about the safety, effectiveness and quality of generic medicine.

11. Suggestions for future work

Similar studies in different parts of the country shall be conducted to assess knowledge, attitude and practice of both clients and health professionals (physician, pharmacy personnel) working in public and private health care facilities.

Since some clients and pharmacy personnel showed different views for domestic and imported generics, study comparing safety, effectiveness and quality of domestic generics and imported generics should be conducted.

Reference

Al-Gedadi NA, Hassali MA, Shafie AA (2008). A pilot survey on perceptions and knowledge of generic medicines among consumers in Penang, Malaysia. Pharmacy Practice 6:93-97.

Bertoldi AD; Aluísio J. D. Barros; Pedro C. Hallal (2005).Generic drugs in Brazil: known by many, used by few. Cad. Saúde Pública, Rio de Janeiro 21:1808-1815.

Babar ZU, Stewart J, Reddy S, Alzaher W, Vareed P, Yacoub N, Dhroptee B, Rew A(2010). Evaluation of consumers‟ knowledge, perceptions and attitudes regarding generic medicines in Auckland. International Journal of clinical pharmacology and therapeutics 43:472-479.

Babar ZUD, Grover P, Stewart J, Hogg M, Short L, Seo hg, RewA(2011). Evaluating Pharmacists' knowledge and perception regarding generic medicines in New Zealand. Research in social and administrative pharmacy 7:294-305.

Babar Z-Ud and Awaisu A.(2008). Evaluating community pharmacists' perception and practices on generic medicines: A pilot study from Peninsular Malaysia. Journal of Generic Medicines 5:315 – 330.

Braybrook S, Walker R(2000). Influencing NSAID prescribing in primary care using different feedback strategies. Pharm World Sci 22:39–46.

Cameron A, Ewen M, Ross –Degnan , Ball D, Laing R (2011). Medicine prices, availability and affordability in 36 developing and middle-income countries: A secondary analysis. Lancet 373:240–249.

CSA(2008). The 2007 Population and Housing Census Result. URL: http://www .csa.gov. et/pdf /Cen2007_firstdraft.pdf.

Chong CP, Hassali MA, Bahari MB and Shafie AA(2011).Exploring community pharmacists' views on generic medicines: a nationwide study from Malaysia. International Journal Clin Pharm 33:124–131.

Cohen-Kohler JC(2007). The morally uncomfortable global drug gap. Nature 82: 610-614.

Decollogny A ,Eggli Y, Halfon P, Lufkin TM (2011). Determinants of generic drug substitution in Switzerland. BMC Health Services Research 11:17.

FMOH/WHO(2005). Survey on prices of medicines in Ethiopia.URL: apps.who. int/ medicine docs/ documents/s16554e/s16551e.pdf.

FMOH/WHO(2007). Drug financing in Ethiopia.URL**:** apps.who.int/medicinedocs/ en/m/abstract /s16551e/s16551e.pdf.

Generic Pharmaceutical Association (2010).Generic Pharmaceutical Association: Press Releases. URL: http//www. Gphaon line. org/media/press-release s/2010/gen eric- medicines - saved -us-health -care system 1396-billion-2009-824-billio.

Gossell-Williams M, Harriott K(2007). Generic substitution in Jamaica: challenges to improving effectiveness. WHO Drug Info 21:294–9.

Hassali MA, Kong DC, Stewart K(2005). Generic medicines: perceptions of consumers in Melbourne, Australia. The International Journal of Pharmacy Practice 13: 257–2643.

Himmel W, Simmenroth-Nayda A, Niebling W, Ledig T, Hummers- Pradier E. (2005). What do primary care patients think about generic drugs? International Journal of Clinical Pharmacology and Therapeutics 43: 472–9.

Hogerzeil HV& Mirza Z (2011).The world medicine situation.Access to essential medicineas part of the right to health. WHO/EMP/MIE/2011.2.10

Igbinovia Matthew Esosasere (2007).The perceived benefits of generic versus branded medicines.URL:Upetd.up.ac.za/thesis/dissertation.pdf.

Jamshed SQ ,Hassali MAA, Ibrahim M IM , Shafie EE and Babar Z (2010). Knowledge, Perception and Attitude of Community Pharmacists towards Generic Medicines in Karachi, Pakistan: A Qualitative Insight. Tropical Journal of Pharmaceutical Research 9: 409-415.

Kasmer RJ, Nara AR, Green JA, Chawla AK, Fleming GM (1987). Comparable steady-state bioavailability between two preparations of conventional-release procainamide hydrochloride. Drug Intell Clin Pharm 21:183–186.

Kesselheim AS, Misono AS, Lee JL, Stedman MR, Brookhart MA, Choudhry NK (2008). Clinical equivalence of generic and brand name drugs used in cardio-vascular diseases. JAMA. 2008;300:2514–26.

Kirking DM, Ascione FJ (2001). Perspectives on generic pharmaceuticals: some conclusions. Journal of American pharmaceutical association1 41: 826-8.

Leach RH, WakemanA(1999). An evaluation of the effectiveness of community pharmacists working with GPs to increase the costeffectiveness of prescribing. Pharm Journal 263:206–9.

Lebanova H , Manolov D & Getov I (2012). Patients attitude about generics –Bulgarian perspective. Marmara Pharmaceutical Journal 16: 36-40.

Mohammed Nuru, Teferi Gedif and Damen Hailemariam (2009). Cost as a barrier to access : availability, affordability and identifying component cost of essential medicine.URL: http://www.inrud.org/icium/conferencematerials/293-mohammednur-_a.pdf.

Nguyen N (2010). The American Pharmacy Staff‟s Experiences and Opinions of generic drug substitution. Institution for pharmacy, Uppsala university.

Palagyi M & Lassanova M(2008).Patients attitudes towards experience with use of generics in Slovakia, performance of generic substitution. Bratisl Lek Listy 109:324-328.

Patel A , Gauld R , Norris P and Rades T (2010). This body does not want free medicines: South African consumer perceptions of drug quality. Health Policy and Planning 25:61–69.

Pearce GA, McLachlan AJ, Ramzan I (2004). Bioequivalence: how, why, and what does it really mean? J Pharm Pract Res. 34:195–200.

Ping CC, Bahari MB and Hassali MA (2008). A pilot study on generic medicine substitution practices among community pharmacists in the State of Penang, Malaysia. Pharmacoepidemiology and Drug Safety 17: 82–89.

Sajbel TA, Carter GW, Wiley RB(2001). Converting patients from brand-name clozapine to generic clozapine. Ann Pharmacother 35: 281-4.

Shafi &Hassali (2008).Price Comparison between Innovator and Generic Medicines Sold by Community Pharmacies in the State of Penang, Malaysia .Journal of Generic Medicines: The Business Journal for the Generic Medicines 6:35-42.

Sharrad, AK & Hassali, MA (2011). Consumer perception on generic medicines in Basrah, Iraq: Preliminary findings from a qualitative study. Research in Social and Administrative Pharmacy 7:108–112.

Singal GL, Nanda A and Kotwani A (2011). A comparative evaluation of price and quality of some branded versus branded–generic medicines of the same manufacturer in India. Indian J Pharmacol 43: 131–136.

Thomas R &Vitry A (2009).Consumers‟ Perception of generic medicines in community pharmacies in Malaysia. Southern Med Review 2:20-23.

World Health Organization (2004). WHO Medicines Strategy: Countries at the core, 2004–2007. Geneva: World Health Organization. URL: http://apps.who.int /medicinedocs/ pdf /s5416e/s5416e.pdf.

World Health Organization and Health Action International(2008).Measuring medicine prices, availability, affordability and price components. URL: http://www .who. int/medicines /areas/ access /OMS_Medicine_prices.pdf

ANNEXES

Annex I: Questionnaire for data collection on consumers' knowledge, attitude and practice on generic medicine in community pharmacies of Hawassa, 2012.

Addis Ababa University

School of Pharmacy

Department Pharmacoepidemiology and Social Pharmacy

Client's code Number: ___________

Pharmacy Code: _________

Verbal consent form before conducting interview with clients

Greeting

My name is ______________________________. I am working with the research team of the Department of Pharmaceutics, School of Pharmacy, Addis Ababa University. The aim of this study is to investigate knowledge, attitude and practice of community pharmacies clients' on generic medicine in Hawassa. The finding from this study will provide the baseline data to assist policy makers to employ appropriate intervention strategies. The strategy will help to promote the use of generic medicines which are reliable in terms of safety, effectiveness and better affordability. Thus in order to meet the objective of this study I would like to ask you a few questions regarding your knowledge, attitude and practice on generic medicine. The interview would probably take 10-15 minutes of your time. Your participation is completely voluntary and you can refuse to answer any questions and/or withdraw from the interview at any time you want. All responses will be kept confidential (your interview responses will only be shared with research team members and we will ensure that any information we include in our report does not identify you as the respondent). Information about you that will be collected by this study will be stored in a file without your name but a code number assigned to it and will be kept locked with key.

Are you willing to participate in this interview? Yes __ No ___

If Yes, Continue to the Next Page If No, Skip to the next Respondent

Date of Interview__________________ Time Started__________Time Finished ____________

Part I: Socio-demographic characteristics

1. Sex

   1. Male 2. Female

2. Age______ years old

3. Marital status

   1. Single 2. Married/Live With Partner

   3. Divorced 4. Widowed

4. Religion

   1. Orthodox 2. Catholic 3.protestant 4.Muslim 5.Other

5. Ethnicity

   1. Amhara 2. Wolaita 3. Gurage 4. Sidama 5. Hadia

   6. Oromo 7. Kembata 8. Tigre 9. Other, please specify ___________

6. Educational status
   1. Unable to read and write
   2. Read and write only
   3. Primary education (1-8)
   4. Secondary education (9-12)
   5. Higher education (Certificate, Diploma, First degree & Above)
   6. Others, please specify ______

7. Occupation
   1. Government employee
   2. Nongovernmental organizations Employee
   3. Merchant
   4. Farmer
   5. Student
   6. Unemployed
   7. Retired
   8. Others, please specify____________________

8. Average family income per month______ (EBR)

Part II: Questions related to clients' knowledge on generic medicine

9. Any preference for a particular country's product?

   1. Yes 2. No

10. If your answer for question number 9 is 'yes', Which product do you prefer more

   1. Local 2. Imported

11. From imported product, which countries medicine would you prefer most(choose all that can apply)?

   1. Indian 2. China 3. Germany 4. England

   5. Korea 6. What a physician prescribed

   7. Others, please specify ___________

12. Why Indian, China, Ethiopian or European products? (choose all that can apply)

   1. My Doctor knows best about medicines
   2. Recommended by pharmacists
   3. Recommended by users (family, friends or other regular users)
   4. Recommended by physician
   5. Effective
   6. Cheaper
   7. Safe
   8. Availability
   9. Other, please specify_______________________

13. Have you ever heard about generic medicine?

   1. Yes → proceed to the next question
   2. No → proceed to question 15

14. Effectiveness of generic medicine is

   1. Better than brand alternatives
   2. The same as brand alternatives
   3. Worse than brand alternatives
   4. I don't know

15. Safety of generic medicine is

1. Better than brand alternatives
2. The same as brand alternatives
3. Worse than brand alternatives
4. I don't know

16. Who is your information source regarding medicine?

1. Physician
2. Pharmacist
3. Family/ Friends
4. Medias
5. Books/journals/magazines
6. Other health professionals

Other (please specify)________________________________

Part III: Questions related to clients' attitude towards generic medicine

For each statement on the left please encircle one number which best describes the level of clients' agreement (5= Strongly Disagree (SD); 4=Disagree (D); 3=Neutral-N (Neither agree nor disagree); 2=Agree (A), 1=Strongly Agree (SA).

No.	Items	**SA 1**	**A 2**	**N 3**	**D 4**	**SD 5**
17.	Brand medicines are more effective than generic medicine					
18.	Generic medicine take longer time to give a response					
19.	Generic medicines cause more side effect than brand name alternatives					
20.	Safety, efficacy and quality of generic medicines are approved by FMHACA just like branded medicines in Ethiopia					

Part IV: Questions related to clients' practice/ past practice on generic medicine

21. Have you ever used generic medicine?
    1. Yes 2. No 3. I don't remember
22. If your answer in Q 21 is 'yes', what is your reason for using it(choose all that can apply)?
    1. I used it before and it was effective
    2. It is cheaper than brand alternatives
    3. Recommended by pharmacist /physician
    4. Better availability of generic medicine
    5. Other reason. please, specify ________________________________
23. If you have experience what do you feel with generic medicines? (choose all that can apply)?
    1. Generic medicines are more effective than brand name alternatives
    2. Generic medicines are as effective as brand alternatives
    3. Even if they are not as effective as brand alternative, they give relief
    4. I used it before and it was not effective so I prefer the brand alternatives
    5. They should not be substituted for all cases, especially for serious Conditions
    6. Others, please specify
24. Has a pharmacy personnel ever recommended you to switch to a generic medicine from brand alternatives?
    1. Yes 2. No 3. I don't remember
25. If your answer for question 24 is yes, did you follow their advice?
    1. Yes 2. Sometimes 3. No 4. I don't remember
26. If you have not used generics in the past or do not know it are you willing to use them in the future?
    1. Yes 2. No 3. I'm not sure

27. If your answer for question no.33 is no, what is your reason (choose all that can apply)?

1. Because generics are not as effective as the original
2. I do not think generics are as safe as the original
3. I think generics are inferior in quality
4. Other (please specify) ______________________________

Annex II-Guide for key informant interviews on knowledge, attitude and practice on generic medicine with pharmacy personnel in Hawassa,2012

Introduction:

Many thanks for giving me your time. My name is Muluwork Sahile, the principal investigator of the study entitled “Knowledge, Attitude and practice on generic medicine among community pharmacies’ Clients and pharmacy personnel in Hawassa.” I would like to have some minutes with you to talk about your knowledge, attitudes and practice on generic medicine.

Aim of Interview:

The aim of this interview is to assess knowledge, attitude and practice on generic medicine among pharmacy personnel in Hawassa. To meet this aim we are interested in investigating your knowledge, attitude and practice on generic medicine. You will spend 10 minutes with me. Although I will be taking some notes during the session, I can’t possibly write fast enough to get it all down. Therefore I will be taping the session not to miss any of your comments. Your interview responses will only be shared with research team members and we will ensure that any information we include in our report does not identify you as the respondent. You may end the interview at any time however your honest answers to these questions will help us better understand about knowledge, attitude and practice on generic medicine among pharmacy professionals.

Are you willing to participate in this interview?

Yes __ No ___

Interview Begins

Part I: Socio-demographic characteristics

1. Sex male ☐ female ☐
2. Age____ years old
3. Marital status

☐ Single ☐ Married/Live With Partner

□Divorced □Widowed

4. Religion:

□Christian, Orthodox □Muslim

□Christian, Protestant □Christian, Catholic

□Others, please Specify______________________

5. Educational level in pharmacy

□Certificate □ Degree

□ Diploma □Masters

6. Are you the owner of the pharmacy?"

□Yes/owner □No/employed

Part II: Questions related to Pharmacy personnel' knowledge on generic medicine

2.1. Could you explain what generic medicines are?

2.2. Are there any differences between generic and innovator drugs? Explain?

Part III: Questions related to Pharmacy personnel' attitude towards generic medicine

3.1. What is your opinion regarding quality, safety and effectiveness of generic medicine?

3.2. On the scale of 1 to 5 (with highest = 5, lowest = 1), please rank your confidence on generic medicine approval system in Ethiopia with regards to bioequivalence, quality and safety.

1. Very low confidence
2. Low confidence
3. Moderate confidence
4. High confidence
5. Very high confidence

Part IV: Questions related to pharmacy personnel' practice on generic medicine

4.1. Would you describe your general experience on generic drug substitution practice?

4.2. What do you think are the determinant factor to dispense generic or brand medicine? explain

4.3. Is there anything more you would like to add?

Annex III: Amharic Version of questionnaire for data collection on consumers' knowledge, attitude and practice on generic medicine in community pharmacies of Hawassa, 2012

አዲስ አበባ ዩኒቨርሲቲ

ፋርማሲ ትምህርት ቤት

የፋርማኮኢፒዲሞሎጂና ሶሻል ፋርማሲ ትምህርት ክፍል

በሀዋሳ ከተማ ውስጥ በሚገኙ የማህበረሰብ መድሃኒት ቤቶች የፋርማሲ አገልግሎት ያገኙ ተገልጋዮች መድሃኒትነታቸዉ ከዉድ መድሃኒቶች ጋር ተመሳሳይ ሆኖ ዋጋቸዉ አነስ ስለሚል መድሃኒቶች ያላቸውን ዕዉቀት ፤ አመለካከት ና ተሞክሮ በተመለከተ መረጃ ለመሰብሰብ የተዘጋጀ መጠይቅ፣ 2004 ዓ.ም

የመጠይቁ መለያ ቁጥር ______________________

የመድሃኒት ቤቱ መለያ ቁጥር_______________

ቃለመጠይቁ የተደረገበት ቀን__________

የ ፋርማሲ አገልግሎቱ ተጠቃሚዎች በጥናቱ ለመሳተፍ ፍቃደኝነታቸዉን የሚገልፁበት ቅጽ:

ጤና ይስጥልኝ

እኔ ______________________እባላለሁ። በአዲስ አበባ ዩኒቨርሲቲ፣ የፋርማሲ ትምህርት ቤት፣ የፋርማኮኢፒዲሞሎጂና ሶሻል ፋርማሲ ትምህርት ክፍል የጥናት ቡድን አባል ነኝ። የዚህ ጥናት ዋና አላማ ደምበኞች መድሃኒትነታቸዉ ከዉድ መድሃኒቶች ጋር ተመሳሳይ ሆኖ ዋጋቸዉ አነስ ስለሚል መድሃኒቶች ያላቸው እውቀት፤አመለካከትና ተሞክሮ(ተግባር) በጥልቀት ለማወቅ ሲሆን ከጥናቱ የሚገኘዉ ውጤት የፖሊሲ አዉጪዎች የማስተካከያ ስልቶችን እንዲቀይሱ እንደመነሻ መረጃነት ያገለግላል። ስልቶቹም ህዝቡ ደህንነታቸዉ፣ ፈዋሽነታቸዉና ጥራታቸዉ አስተማማኝ የሆነና ዋጋቸዉ ከህዝቡ የመግዛት አቅም ጋር ተመጣጣኝ የሆኑ መድሃኒቶችን እንዲጠቀም ለማበረታታት ይረዳሉ። ስለዚህ የጥናቱ ዋና አላማ ይሳካ ዘንድ ስለነዚህ መድሃኒቶች ያሎትን ዕውቀት፣አመለካከትና ተሞክሮ በተመለከተ የተወሰኑ ጥያቄዎችን ልጠይቅዎ እወዳለሁ።መጠይቁ ከግዜዎ 10-15 ደቂቃ የሚወስድ ሲሆን በዚህ ጥናት ውስጥ የእርስዎ ተሳታፊነት ሙሉ በሙሉ በእርስዎ ፍቃደኝነት ላይ የተመሰረተ ይሆናል። ቃለመጠይቁን በማንኛውም ሰአት ማቋረጥ ወይም ጥያቄዎችን አለመመለስ ይችላሉ።በመጠይቁ ውስጥ ለሚነሱ ጥያቄዎች የሚሰጡት መልስ ሙሉ በሙሉ ምስጢራዊነቱ

የተጠበቀ ይሆናል፡፡ የሚሰጡት ምላሽ ለጥናት ቡድን አባላት ብቻ ግልጽ የሚደረግ ሲሆን ማንኛዉም በሪፖርታችን (በዘገባችን) የሚጠቃለል መረጃ እርስዎን እንደመላሽ የሚለይ አሆንም፡፡ በዚህ ጥናት ዉስጥ እርስዎን በሚመለከት የሚሰበሰብ መረጃ ስምዎን የማያካትት መለያ ተሰጥቶት በተቆለፈ ሰነድ ዉስጥ ይቀመጣል፡፡

በዚህ ቃለ-መጠይቅ ለመሳተፍ ፍቃደኛ ነዎት? አዎ________ አይደለሁም ________

ፍቃደኛ መሆናቸውን ካረጋገጡ ቃለመጠይቁን ይጀምሩ

ፍቃደኛ ካልሆኑ ወደሚቀጥለው ተገልጋይ ይሸጋገሩ

ቃለመጠይቁ የተደረገበት ቀን ________________________

የተጀመረበት ሰዓት_____________________ ያለቀበት ሰዓት__________________________

ክፍል አንድ፡ እርስዎን በተመለከተ አጠቃላይ መጠይቅ

1. ፆታ
   1. ወንድ 2. ሴት
2. እድሜ _________አመት
3. የጋብቻ ሁኔታ
   1. ያላገባች 2. ባትዳር 3. አግብተው የፈቱ 4. የትዳር ጓደኛን በሞት ያጡ
4. ሃይማኖት
   1. ኦርቶድክስ 2. ካቶሊክ 3.ፕሮቴስታንት 4.ሙስሊም
   5. ሌሎች፣ ይገለጽ _______________
5. ብሄር
   1. አማራ 2. ሲዳማ 3. ወላይታ 4. ጉራጌ 5. ኦሮሞ 6.ሀድያ
   7. ሌሎች፣ ይገለጽ __________

6. የትምህርት ደረጃ

1. ማንበብና መፃፍ አልችልም
2. ማንበብና መፃፍ እችላለሁ(መደበኛ ያልሆነ ትምህርት/የሃይማኖት ትምህርት)
3. የመጀመሪያ ደረጃ ትምህርት (1-8)
4. አጠቃላይ ሁለተኛ ደረጃ ትምህርት (ከ9ኛ-12ኛ ክፍል)
5. የከፍተኛ ትምህርት (ሰርተፍኬት፣ ዲፕሎማ፣ የመጀመሪያ ዲግሪና ከዚያ በላይ)
6. ሌሎች፣ ይገለፅ_______________________________

7. ስራ

1. የመንግስት ሰራተኛ
2. መንግስታዊ ያልሆነ መሥሪያ ቤት ተቀጣሪ
3. ነጋዴ
4. አርሶ አደር
5. ተማሪ
6. ሥራ የሌለው/የሌላት
7. ጡረተኛ/ በጡረታ ከሥራ የተገለለ
8. ሌሎች፣ይገለፅ_______________

8. የቤተሰብ አማካይ ወርሃዊ ገቢ _____ብር

ክፍል ሁለት፡- የጥናቱ ተሳታፊዎች መድሃኒትነታቸዉ ከዉድ መድሃኒቶች ጋር ተመሳሳይ ሆኖ ዋጋቸዉ አነስ ስለሚል መድሃኒቶች ያላቸውን እዉቀት የሚዳሳሱ ጥያቄዎች

9. መድሃኒትነታቸዉ አንድ አይነት ሆኖ በሚመረቱበት ሀገር ለሚለያዩ መድሃኒቶች የተለየ ፍላጎት አሎት?

   1.አዎ → ወደ ጥያቄ ቁጥር 10

   2. የለኝም → ወደ ጥያቄ ቁጥር 13

10. ሃገር ዉስጥ ከሚመረቱና ከዉጭ ከሚገቡ መድሀኒቶች የትኛዉን ይመርጣሉ?

    1. ሃገር ዉስጥ የሚመረቱ 2. ከዉጭ የሚገቡ

11. ከሚከተሉት አገሮች ዉስጥ የየትኛዉን አገር መድሃኒትን ይመርጣሉ?((ትክክል የሆነዉን ሁሉ ይምረጡ)

    1. የህንድ 2. የቻይና 3. የጀርመን
    4. የኢንግላንድ 5. የኮሪያ 6. በሀኪም የታዘዘልኝን
    7. ሌሎች፣ይገለፅ______________________________

12. ከዚህ በላይ የተጠቀሱትን ሀገር/ራት ለመምረጥዎ ምክንያትዎ ምንድነዉ?(ትክክል የሆነዉን ሁሉ ይምረጡ)

    1. ሀኪም የተሻለ ያውቃል ብዬ ስለማስብ
    2. የፋርማሲ ባለሞያ እንድጠቀም ምክር ስለሰጠኝ
    3. ከዚህ በፊት የተጠቀሙ ሰዎች እንድጠቀም ምክር ስለሰጡኝ
    4. ሀኪም እንድጠቀም ምክር ስለሰጠኝ
    5. የበሽታ ምልክቶችን የመቀነስ ወይም የማሻል አቅማቸዉ ከፍተኛ ስለሆነ
    6. ዋጋቸዉ አነስ ስለሚል
    7. የጎንዮሽ ጉዳት የማድረስ አቅማቸዉ ዝቅተኛ ስለሆነ
    8. በቀላሉ ስለሚገኙ
    9. ሌሎች፣ይገለፅ______________________

13.መድሃኒትነታቸዉ ከዉድ መድሃኒቶች ጋር ተመሳሳይ ሆኖ ዋጋቸዉ አነስ ስለሚል መድሃኒቶች ሰምተዉ ያዉቃሉ?

1. አዎ ⟶ ወደ ጥያቄ 5 ይለፉ
2. የለም(አላዉቅም) ⟶ ወደ ጥያቄ 7 ይለፉ

14. በንግድ ስም ከሚጠሩ/ከዉድ መድሀኒቶች ጋር ሲነጻጸሩ የበሽታ ምልክቶችን የመቀነስ ወይም የማሻል አቅማቸዉ

1. የተሻለ ነዉ
2. ተመሳሳይ ነዉ
3. ያነሰ ነዉ
4. አላዉቅም

15.በንግድ ስም ከሚጠሩ/ከዉድ መድሀኒቶች ጋር ሲነጻጸሩ የጎንዮሽ ጉዳት የማድረስ አቅማቸዉ

1. የተሻለ ነዉ
2. ተመሳሳይ ነዉ
3. ያነሰ ነዉ
4. አላዉቅም

16.መድሀኒቶችን በተመለከተ የመረጃ ምንጭ ማን ነዉ?

1. ሐኪም
2. የፋርማሲ ባለሞያ
3. ቤተሰብ/ጓደኛ
4. የመገናኛ ብዙሃን
5. መጻህፍት/ጆርናሎች፣መጽሄቲች
6. ሌሎች፣ይገለፅ______________________________

<u>ክፍል ሶስት</u>፡- የጥናቱ ተሳታፊዎች መድሃኒትነታቸዉ ከዉድ መድሃኒቶች ጋር ተመሳሳይ ሆኖ ዋጋቸዉ አነስ ስለሚል መድሀኒቶች ያላቸውን አመለካከት የሚዳሳሱ ጥያቄዎች

በግራ በኩል ላሉት ሃሳቦች ደምበኞች ያላቸዉን የስምምነት ደረጃ በተሻለ የሚገልጸዉን ቁጥር አክብብ/ቢ(1=በጣም አልስማማም (በእ)፣2=አልስማማም(አ) ፣3=ገለልተኛ(ገ) ፣4=እስማማለሁ(እ) ፣5= በጣም እስማማለሁ(በእ)፣0= አላዉቅም)

ተ. ቁ	ጥያቄዎች	በእ	እ	ገለ	አ	በአ
17.	በንግድ ስም የሚጠሩ/ ዋጋቸዉ ዉድ የሆኑ መድሃኒቶች የበሽታ ምልክቶችን በመቀነስ ወይም በማሻል ዋጋቸዉ አነስ ካለ መድሃኒቶች የበለጠ ዉጤታማ ናቸዉ	1	2	3	4	5
18.	መድሃኒትነታቸዉ ከዉድ መድሃኒቶች ጋር ተመሳሳይ ሆኖ ዋጋቸዉ አነስ ያለ መድሃኒቶች የበሽታ ምልክቶችን ለመቀነስ ወይም ለማሻል ረጅም ጊዜ ይወስድባቸዋል	1	2	3	4	5
19.	መድሃኒትነታቸዉ ከዉድ መድሃኒቶች ጋር አንድ አይነት ሆኖ ዋጋቸዉ የሚያንስ መድሃኒቶች የበለጠ የጎንዮሽ ጉዳት አላቸዉ	1	2	3	4	5
20.	በኢትዮጵያ ዉስጥ መድሃኒትነታቸዉ ከዉድ መድሃኒቶች ጋር ተመሳሳይ ሆኖ ዋጋቸዉ የሚያንስ መድሃኒቶች የጎንዮሽ ጉዳት የማድረስ ባህርያቸዉ፣ፈዋሽነታቸዉ ና ጥራታቸዉ እንደ ዉድ መድሃኒቶች ሁሉ አግባብ ባለዉ አካል ይረጋገጣል	1	2	3	4	5

ክፍል አራት፡- የጥናቱ ተሳታፊዎች መድሃኒትነታቸዉ ከዉድ መድሃኒቶች ጋር ተመሳሳይ ሆኖ ዋጋቸዉ አነስ በሚል መድሀኒቶች ላይ ያላቸውን ተሞክሮ የሚዳስሱ ጥያቄዎች

21. መድሃኒትነታቸዉ ከዉድ መድሃኒቶች ጋር ተመሳሳይ ሆኖ ዋጋቸዉ የሚያንስ መድሀኒቶችን ተጠቅመው ያውቃሉ?

    1.አዎ 2. አላውቅም 3. አላስታዉስም

22. ለጥያቄ ቁጥር 23 መልስዎ 'አዎን' ከሆነ ለመጠቀምዎ ምክንያቶዎ ምን ነበር? (ትክክል የሆነውን ሁሉ ይምረጡ)

    1. ካሁን በፊት ተጠቅሜበት ውጤታማ ስለነበረ
    2. በንግድ ስም ከሚጠሩ መድሀኒቶች ስለሚረክስ
    3. የፋርማሲ ባለሙያ/ሀኪም እንድወስድ ምክር ስለሰጠኝ
    4. ሌሎች፤ይገለፅ_______________________________

23. ከአሁን በፊት መድሃኒትነታቸዉ ከዉድ መድሃኒቶች ጋር ተመሳሳይ ሆኖ ዋጋቸዉ የሚያንስ መድሀኒቶችን ተጠቅመው የሚያውቁ ከሆነ ስለነዚህ መድሀኒቶች ያሎዎት አስተያየት ምንድነው?

1. የማሻል አቅማቸው ከውድ መድሀኒቶች የተሻለ ነዉ
2. የማሻል አቅማቸው ከውድ መድሀኒቶች ጋር ተመሳሳይ ነዉ
3. የማሻል አቅማቸው ከውድ መድሀኒቶች ያነሰ ቢሆንም ያሸላሉ
4. ከአሁን በፊት ተጠቅሜአቸው ውጤታማ ስላልነበሩ ውድ መድሀኒቶች እመርጣለሁ
5. እነዚህ መድሀኒቶችን ለሁሉም በሽታ በተለይ ለሀይለኛ ህመሞች መወሰድ የለባቸውም፣
6. ሌሎች፤ይገለፅ________________________

24.የፋርማሲ ባለሙያዎች ዉድ መድሃኒቶች በርካሽ መድሃኒቶች እንዲቀይሩ መክረዎት ያዉቃሉ?

1. አዎ 2. አያዉቁም 3. አላስታዉስም

25.ምክራቸዉን ተቀብለዋል?

1. አዎ 2. አልፎአልፎ 3. አልተቀበልኩም 4. አላስታዉስም

26.እስካሁን ድረስ መድሃኒትነታቸዉ ከዉድ መድሃኒቶች ጋር ተመሳሳይ ሆኖ ዋጋቸዉ የሚያንስ መድሃኒቶችን የማያዉቋቸዉ ወይም ተጠቅመዉ የማያዉቁ ከሆነ ለወደፊት ለመጠቀም ፍቃደኛ ነዎት?

1. አዎ 2. አይደለሁም 3.እርግጠኛ አይደለሁም

27.ለጥያቄ ቁጥር 26 መልስዎ አይደለሁም ከሆነ ምክንያትዎ ምንድን ነዉ? (ትክክል የሆነውን ሁሉ ይምረጡ)

1. የማሻል ሃይላቸዉ እንደ ዉድ መድሃኒቶች ስላልሆነ
2. ከውድ መድሃኒቶች የበለጠ የጎንዮሽ ጉዳት አላቸዉ ብዬ ስለማስብ
3. ዋጋቸዉ የረከሰዉ ጥራታቸዉ ያነሰ ስለሆነ ነዉ ብዬ ስለማስብ
4. ሌሎች ካሉ ይገለጽ________________________________

ስለሰጡኝ ጊዜና ስላደረጉልኝ ትብብር ከልብ አመሰግናለሁ።