



**ADDIS ABABA UNIVERSITY COLLEGE OF HEALTH  
SCIENCES SCHOOL OF PUBLIC HEALTH**

Assessment of Maternal Satisfaction Towards Childhood Immunization and Its Associated Factors in MCH Clinic, at Kombolcha , in Amhara Regional State, Northern Ethiopia.

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Assessment of Maternal Satisfaction Towards Childhood Immunization and Its Associated Factors,  
Cross Sectional Facility Based Study, at Kombolcha City in Amhara Regional State Northern Ethiopia

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## **Acronyms /Abbreviations/**

WHO	World Health Organization
DPT	Diphtheria, Pertussis, Tetanus
FJHW	Female Junior Health Worker
SPSS	Statistical Package for Social Science
EDHS	Ethiopian Demographic and Health Survey
EPI	Expanded Programme of Immunization
IMNCI	Integrated Management of Neonatal and Childhood Illnesses
HEP	Health Extension Program
MCH	Maternal and child health
MDG	Millennium Development Goal
HSDP	Health service development programme
HEP.B	Hepatitis B
Hib	Heamophilus influenza type b
MOH	Ministry of Health
MMR	Mumps, Measles, Rubella
NGO	Non-Governmental Organization
BCG	Bacillus Calumet Guerin
Qs	Quality scale
OR	Odd Ratio

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## **Abstract**

**Background:** Childhood immunization is considered to be among the most effective preventive services, and is one of the most important public health interventions which is cost effective to reduce both morbidity and mortality associated with infectious diseases. A satisfied mother is assumed to use the services and complies with service provider for better health care out comes. Therefore it is important to assess the enabling factors that can improve the utilization of the service among mothers since the available information in this regard is limited.

**Objectives:** To assess maternal satisfaction toward childhood immunization and its associated factors in Kombolcha town health centers, South Wollo Amhara Region Ethiopia.

**Method:** A facility based cross sectional study was conducted among 422 mothers from March to April 2015 in Kombolcha town. Systematic random sampling technique was used. Exit interviews, in-depth interview and checklists were tools to collect the data. The data were entered in to Epiinfo and then analyzed by using SPSS v. 21. Logistic regression analyses were done to examine the relationship between satisfaction and associated factors with p-value < 0.05 statically significant.

**Result:** In this study, 71.9% (304 of 422) of the mothers were satisfied towards immunization service provided. Mothers who have got greeting are significantly satisfied as compared with their counterparts AOR (95%CI) =3.517(1.852-6.678). Mothers who got service within short waiting time (<30min) satisfied more likely than served in long waiting time (>30min) AOR (95%CI) =12.23(6.051, 24. 71), mothers who have got vaccine information satisfied more likely than who haven't vaccine information AOR (95%CI) =12.10 (6.19, 23.71). The availability of vaccine drug was rated as 94% good, 85.4% of mothers were happy by getting their children vaccination and there was inconvenience in fixed day vaccination schedule.

**Conclusion:** The observed level of satisfaction in this study was encouraging. Immunization process activities, accessibility and quality of care were significantly associated with maternal satisfaction

**Recommendation:** Enhancement of service process, waiting time and quality of care are very crucial in order to maximized maternal satisfaction level. Care takers should have accurate information about side effects of vaccines and benefit of the vaccine so that sound knowledge will motivate vaccination decision



# 1 Introduction

## Background

The World Health Organization (WHO) identified the need for public health intervention and in 1974 initiated the Expanded Program of Immunization (EPI), which aims to immunize, and thus protect, mothers against Tetanus and their children against the following six deadly diseases: Childhood Tuberculosis, Poliomyelitis, Diphtheria, Pertussis, Measles and Tetanus (1). Recently additional four vaccination program for pneumonia, Rota virus, Hepatitis B, Hib are launched. Though the available information in this regard is scanty. Childhood immunization is considered to be among the most effective preventive services that a mother can make use of it when satisfied with the service and help her children protected from common childhood illness (2).

Maternal satisfaction refers to the individual's positive evaluation of distinct dimension of health care (3). Maternal satisfaction questionnaires have their origin in two separate developments to improve compliance and to assess consumerism (4). Mothers with lower expectations tend to be more satisfied. Demographic characteristics such as age, educational attainment, and marital status are some of the factors considered to influence the measured satisfaction ratings (5, 6).

Maternal Satisfaction is a multidimensional construct involving interpersonal manner, quality of care, accessibility or convenience, finance of care, consistency, physical environment and availability(7-10). Uptake of vaccination services is dependent not only on provision of these services but also on other factors including knowledge and attitude of mothers, density of health workers (12).

Parental satisfaction with pediatric care is an indicator of provider quality that has been relatively unexplored in relation to childhood immunization (13). Some studies found that consumers' satisfaction with health care services in Africa is one of the most important factors determining the utilization of services (15, 17, 18, and 19). Study conducted in Tanzania showed that determinants of perceptions of quality of services include; perceived time spent at the facility, availability of immunizations, availability of child health services and the staff strength of the health facilities (20). The inconvenience of clinic hours dates of immunization clinics and locations of clinics were reported by 75% of the parents (11). The available information on maternal satisfaction in Africa as well as in Ethiopia is scanty therefore; this study will try to fill the identified gap.

## **Statement of the Problem**

Around 29,000 children die each day worldwide mainly due to vaccine preventable disease most of which occurs in Africa. The disease kill about 470,000 children in Ethiopia per year and it has 30 times more probability of death than a child found in Western Europe (38). In spite of Amhara Regional Health Bureau effort of increasing potential health service coverage to 100% and equipping some facilities beyond the country's standard human power such as health post with nurse, the full immunization coverage is low for the past years .According to EDHS2011 report regions like Addis Ababa, Tigray, Dire Dawa and Harare achieved 78.7, 58.9%, 58.6%, 34.1% respectively. Whereas Amhara had 26.3% in the same year 2011(31). But data from FMOH reported that in 2014 the vaccination coverage in Ethiopia increasing like BCG 99%, OPV3 96%, DPT3 96%, PCV10 96%(25). And according to konbolcha woreda health unit 2013 report the EPI coverage was 89%(unpublished data).However the level of maternal satisfaction and some contributing factors toward vaccination was an explored. And thus, the current study tried to fill this gap.

The health of the mother and child constitutes one of the most serious health problems affecting the community, particularly in the developing countries like Ethiopia. To alleviate this problem Maternal and Child Health (MCH) services have seen a spectrum of changes dating from antiquity to the most recent development of the city. Promotion of maternal and child health has been one of its most important aspects. But any program, however, relevant its components are likely to fail unless it succeeds in improving the knowledge and achieving satisfaction of its clients.

This particular study is conducted to assess the satisfaction of mothers receiving some immunization services in Amhara regional state of Kombolcha town. Assessing outcomes has merit both as an indicator of the effectiveness of different interventions and as part of a monitoring system directed to. Nevertheless maternal satisfaction has not been adequately studied in relation to vaccination and it appears that availability this information is timely and important for improvement of services (5, 6). The reasons for measuring client satisfaction include describing health care service from the client's perspective, measurement of the process of care and evaluation of care as a function of client's satisfaction. Therefore this study will contribute some valuable information in this regarded.

## **Justification of the Study**

EPI was launched in Ethiopia in 1980 to achieve universal immunization coverage of 100% in 1990. In spite of the improvement in immunization coverage over the past many years achieving this goal become difficult to the present. A satisfied mother is more likely to develop a deeper and long-lasting relationship with their medical provider, leading to improved compliance, continuity of care, and ultimately better health care outcomes (13) .This study will provide information that could contribute to satisfaction toward immunization and ultimately improve the vaccination coverage. Parental satisfaction with pediatric care is an indicator of provider quality that has been relatively unexplored in relation to childhood immunization (14).

The available information on maternal satisfaction in Africa as well as in Ethiopia is scanty and this study will try to fill the identified gap and to help responsible bodies to identify the strength and weakness that might either foster or hamper the progress toward the required goal and take corrective action for improving the service delivery system and provided base line information for further research.

## 2 Literature Review

### 2.1 Over view of Immunization and satisfaction

EPI begun in 1974 is considered one of the world's most successful public health programs, as measured by equity and coverage of its intended target population (32). According to WHO guidelines, children are considered fully vaccinated when they have received a vaccination against tuberculosis (BCG), three doses each of DPT, polio and a measles vaccination by the age of 12 months. The pentavalent vaccine DPT-HepB-Hib, introduced in 2007, has replaced the previous DPT vaccine. This new vaccine protects against diphtheria, pertussis (whooping cough), tetanus, hepatitis B, and Haemophilus influenza type b. In Ethiopia, the vaccination policy calls for BCG vaccine given at birth or at first clinical contact, three doses of DPT-HepB-Hib vaccine given at approximately 4, 8, and 12 weeks of age, four doses of oral polio vaccine given approximately at 0-2, 4, 8, and 12 weeks of age, and measles vaccine given at or soon after reaching 9 months of age (31).

**Satisfaction:** Assessing the attitude of clients whether positive or negative toward the service provided by health worker. Some benefits of customer satisfaction are ensure loyalty and repurchase the service, increased profit customer develop confidence, creates awareness to others potential customers, increase the organization's market share in the market place.

### 2.2 National situation

The Ethiopian immunization policy was updated in 2007. Children of under-one year of age and women of reproductive age group (15-49 years age) are the targets for the EPI vaccines (BCG, Measles, DPT-HepB-Hib or penta-valent vaccine, OPV and TT vaccine in Ethiopia respectively). Immunization is one of the national child survival strategies in the country targeted to achieve diphtheria-pertussis and tetanus (DPT3)/measles vaccination coverage of 90% in 2010. In 2014 the vaccination coverage in Ethiopia was increasing like: BCG 99%, OPV3 96%, DPT3 96% PCV10 96% (25).

Overall, 24 percent of children aged 12-23 months were fully vaccinated in Ethiopia. While this represents a 19 percent increase from the level reported in the 2005 EDHS, the percentage of children who are fully vaccinated remains far below the goal of 66 percent coverage the HSDP IV. Data from the EDHS2011 generally show vaccination coverage to be lower than data in the service statistics from the Ministry of Health. However, comparisons of data from various sources should consider differences in

the sampling frame, design, sample size, representativeness of the sample, and selection methodology, as well as differences in the source of information, phrasing of questions, and reporting of data, all of which could help to explain these differences (32).

Most children receive at least 1 dose of the routinely recommended vaccines late, and only 42% of children complete a basic series of vaccinations (3 diphtheria-tetanus-pertussis (DTP), 3 polio, and 1 measles, vaccinations) at the recommended ages in Ethiopia. One third of all children are under vaccinated for more than 6 months. Immunization delays increase the risk of disease outbreak and are markers for inadequate receipt of other preventive services, age-appropriate immunization is a more accurate indicator of adequate immunization than whether immunizations have been received by age 2 years. For these reasons, assessing maternal satisfaction and its contributing factors may give important lesson to improve service utilization. The factors like, maternal factors, process factors, access and quality care factors have negative contribution for service utilization.

### **2.3 Maternal Factors**

Socio-demographic characteristics are determinant factors which affect immunization services. These factors like age, Occupation, Level of education, Marital status, Religion, Income level have contribution to motivate mothers .A study done on Congo found that 95% of mothers aged were more than 20 years and 81.6% of mothers' educational level were Primary/Secondary education (28). Similar study conducted in Egypt showed that, majority of mothers (91.9%) aged 20 years or more. Intermediate education (Primary/Secondary) represented 54.6% of mothers compared to 33.7% for high education (29). In another study in Egypt show that mother's education; 53.6% were secondary educated, 25.9% primary educated, and 11.9% university educated, regarding mother's job; 77.8% were house wives (30). Education of mothers was identified as a major factor for increased immunization in Nigerian children in a rural area (27).

Immunization uptake in the Republic of Ireland remains below the World Health Organization target. Study examining the maternal aspects of this phenomenon have established the following factors as contributing to suboptimal uptake: rising parity, low knowledge regarding immunization, particularly the timing of the next due vaccine, inadequate antenatal care (probably representing poor engagement with medical services), family dysfunction and inadequate social support. Studies have found that the fear of vaccine harm was a barrier to immunization. Mothers point to long waiting times and inconvenient hours. Qualitative study point additionally to difficulty obtaining an appointment, and crowded clinics (28).

## **2.4 Knowledge factors**

The main reasons children don't get immunized were beliefs and behavior; parental knowledge and understanding of immunization; parental fears of immunization; low motivation for immunization; mothers' time costs and other constraints; location of service provision; drop outs; vaccination cards; community participation; traditional health practitioners; traditional health beliefs; research methodologies and health education approaches; and, counseling guidelines, affect utilization of immunization (26). A study conducted in Egypt reported that, inappropriate knowledge was reported by most of mothers (84.8%). There was no relation between vaccination coverage and maternal knowledge. The majority of those with full vaccination coverage (84.5%) and all of those with deficient vaccination coverage had inappropriate knowledge. Lack of motivation on the part of EPI staff, absence of vaccinators, inconvenient locations and problems with the cold chain have been cited as common reasons for obstruction of immunization (22-25). The study of Knowledge and perception of mother with children less than 2 years of age conducted in Lao PDR revealed that 60.5% of mother had adequate knowledge about immunization (53).

Study of Knowledge and attitude on immunization preventable diseases of mother with children 6-24 month old and completeness of their children's immunization done in Thailand. It showed that 82.4% of mothers who had adequate knowledge have their children completely immunized while only 56% of mothers with inadequate knowledge had their children completely immunized. There was no association between the knowledge and completeness of immunization (52).

## **2.5 Process and Access Factors**

Studies on the reasons for low childhood immunization coverage from a variety of countries have identified such factors as inadequate immunization services, poor parental knowledge and attitudes, limited access to service, poor health staff attitude and practices, unreliability of services, false contraindications, and fears of side effects, conflicting priorities, and parental beliefs. Immunization process like greeting vaccine education, waiting time, hygiene, dose, manner of health care providers, availability, affordability, accessibility, environment, distance of facility and transport are deterrents for maternal satisfaction.(52).

Study done in Nigeria the inconvenience of clinic hours, dates of immunization clinics, and locations of clinics were reported by 75% of the parents (11). According to the study done in Egypt,395 ( 95.2% )of

mothers were satisfied with childhood immunization. study done in Nigeria reported that 95.9%, of respondents were satisfied with the childhood immunization, improved drug availability and physical appearance of the health centers there by leading to high levels of consumer satisfaction and people are willing and able to pay for primary health care services if there are quality improvements (27,52).

According to study conducted in India, Client satisfaction in immunization is when 100% of clients are satisfied with availability of services, interpersonal quality, professional competence, and skill 8% of clients were unhappy with duration to wait and fulfillment of health care facility, 30% were unhappy with facilities and equipment, and 20% were unhappy about efficiency to treat (29). Study show that the inconvenience of clinic hours, dates of immunization clinics, and locations of clinics were reasons for maternal dissatisfaction (11).

According to the study done in Uganda satisfied patient is more likely to develop a deeper and long-lasting relationship with their health care provider, leading to improved compliance, continuity of care, and ultimately better health care outcomes. Facility and favorable environments in addition to individualization of care, orientation of patient; informational effectiveness and safety procedures are important factors affecting patient satisfaction. Regarding time spent in examination; 39.5% of mothers spent 5-9 minutes, 33.3% spent <5 minutes and 27.2% spent >10 minutes (21).

The interval to visit the clinic was 81.5% and 18.5% of mothers visited the center 1-4 times and  $\geq 5$  times in the last year, respectively. According to a study done in Egypt, 83.2% of mothers have no difficulty in accessibility (30). Most important causes of users' dissatisfaction were the absence of health workers for all the services, poor staff attitude for all the services, distance for all service and lack of drugs for curative services. Very few mention cost and long waiting hours as a reason (37).

## **2.6 Quality Care Factors(eth. Context???)**

Quality is rapidly becoming a global issue and of concern to both the providers and the users of health care services. Quality can be defined as a conformance to requirements. It may be also defined as doing the right thing right the first time and improving it every time (30). Quality is dependent on six fundamental elements: Choice of method (service) technical competence, information given to clients, inter-personal relations, mechanisms to ensure follow up and continuity, and an appropriate constellation of services (2).

The most powerful predictor for client satisfaction with government health services was the provider's behavior towards the clients, particularly respect and politeness. This aspect is much more important than the provider's technical competence (characterized by elements such as explaining the nature of the problem, physical examination, and giving advice) (35).

Quality can be a simple action to achieve desired objectives in the most efficient and effective manner with the emphasis on satisfying the customer or the consumer. It is a health service that is acceptable, accessible, efficient, effective, safe, cost savings and that's continuously evaluated and upgraded in order to satisfied mothers. Competence of health team diagnosis and treatment of children and courtesy of nurses are among aspects of care in satisfying the users. Quality of care can be measured at three levels: the policy level; the service delivery level; and the client /outcome level. Outcomes have received special emphasis as a measure of quality (30).

According to the study done in Egypt, 57.3% of mothers evaluated childhood immunization services as good while 2.1% evaluated it as inappropriate. Maternal satisfaction about staff attitude was 66.7%, satisfaction about waiting place was 62.9%, satisfaction about information giving was 61%(2).A study done in Bloomberg showed that majority of parents were satisfied with their child's health care. The negative effect of fair/poor satisfaction on immunization was largely explained by reduced utilization of age-appropriate well-child care (26).

Study done in India reported that always immunization was done by female junior health workers (FJHW). Identification of needed vaccine, preparation, and care of vaccine was good (66.67%). The vaccination technique was excellent (81.86%). EPI education was excellent (83.1%). Maintenance of cold chain and supplies was good (76.5%) (27).

Similar study conducted in Turkey showed that the lowest average mean percent score was inadequacy of drugs (44.8%), politeness nurse 57.4%(40). This result coincided with a study stressed that the efficacy of medical treatment is enhanced by greater patient satisfaction. Consequently, patient satisfaction is undoubtedly a useful measure, and to the extent that it is based on patients' accurate assessments, it may provide a direct indicator of quality care (48).

Similar study conducted in Tanzania, reported that the availability of appropriate medication at the first point of contact with the health care system is probably one of the most important components of the quality of primary health care, and therefore a primary determinant of utilization (45). In similar study



done in Egypt the average QS of the studied clinics performance was reported was 49.5%(30). Study done in EI- menoufia university of Egypt found that the quality scores of the children clinics' was, 61.3%(43).

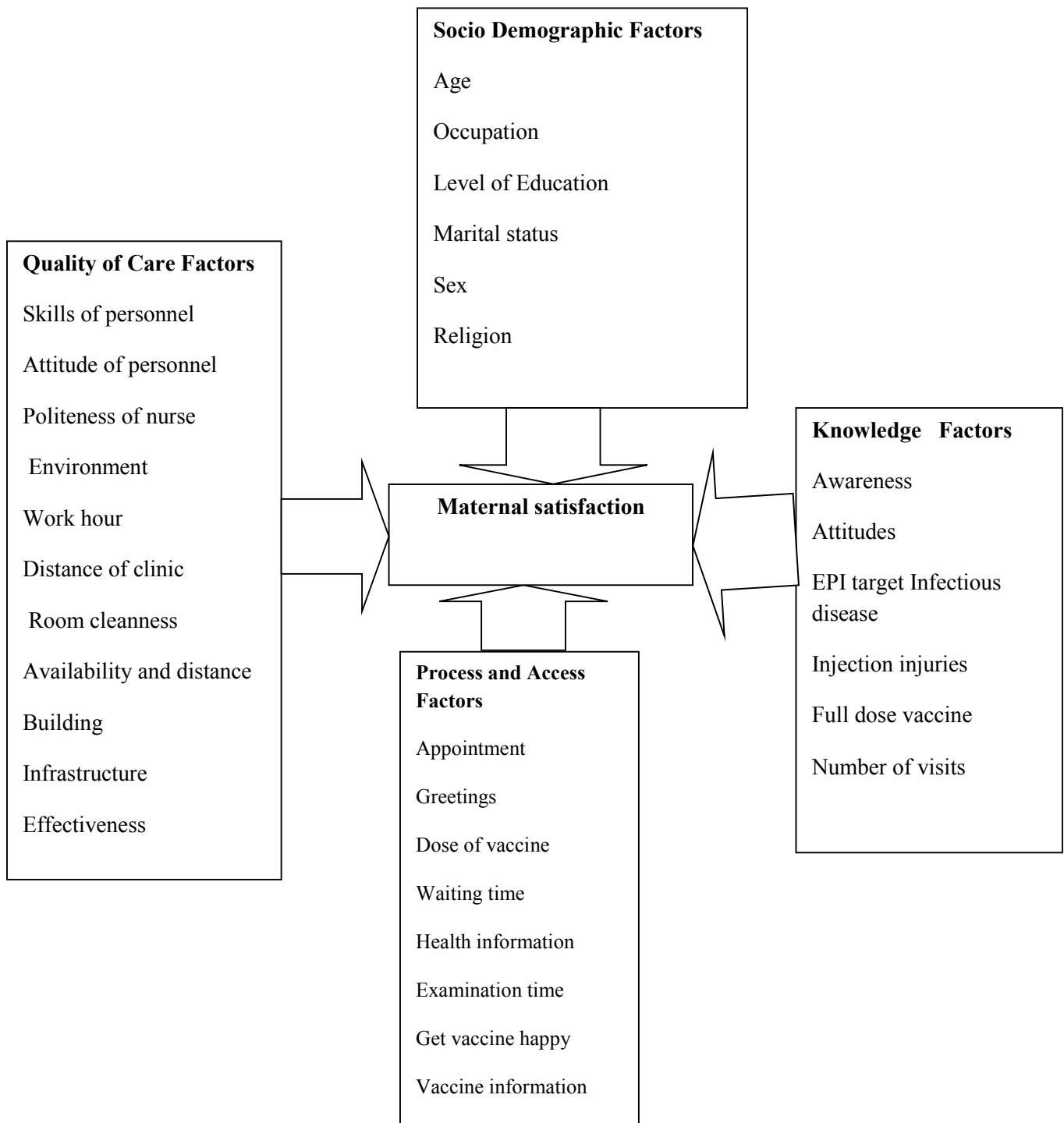


Figure 1 Conceptual Framework developed from different literatures review

### **3. Objective of the study**

#### **3.1 General Objective**

To assess maternal satisfaction toward childhood immunization and its associated factors among children's mothers attending MCH clinic in kombolcha town.

#### **3.2 Specific Objective**

- To assess magnitude of maternal satisfaction level.
- To determine factors contributing to mother's satisfaction.

## **4 Methods**

### **4.1 Study Area and Study period**

This study was conducted, in Kombolcha Town, South Wollo Zone of Amhara Regional State. The town is 375km far from Addis Ababa and has 126,145 populations, bordered by North Wollo and North Gondar in the North, North Shawa in the South, Afar and Oromia on the East, and East Gojam in the West bound. The physical health service coverage of the zone was 42.2% (34). kombolcha located 23 kilometer far from the main town of the zone Dessie. There are four health centers in the town which serves 11 kebele (6 rural kebele and 5 urban kebele) and no hospital in it. The study was done from March to April 2015.

### **4.2 Study Design**

Cross sectional facility based study was conducted using quantitative and qualitative methods the reason was for cost and time limitation.

### **4.3 Source Population**

Kombolcha woreda residences, who are attending immunization services, and immunization service providers.

### **4.4 Study Participants**

Mothers having a child of age 6week to 23 month, and coming to immunization service living in study area, within specified period and health services providers.

### **4.5 Inclusion Criteria and Exclusion Criteria**

#### **Inclusion Criteria**

- Mothers having child coming for vaccination from 6 week to 23 month of age
- Consent to participate

#### **Exclusion Criteria**

- Refused to participate
- Mental abnormality

#### 4.6 Sample Size Determination

The sample size was determined using single population proportionate formula.

Where  $z$  alpha = level of significance 5%

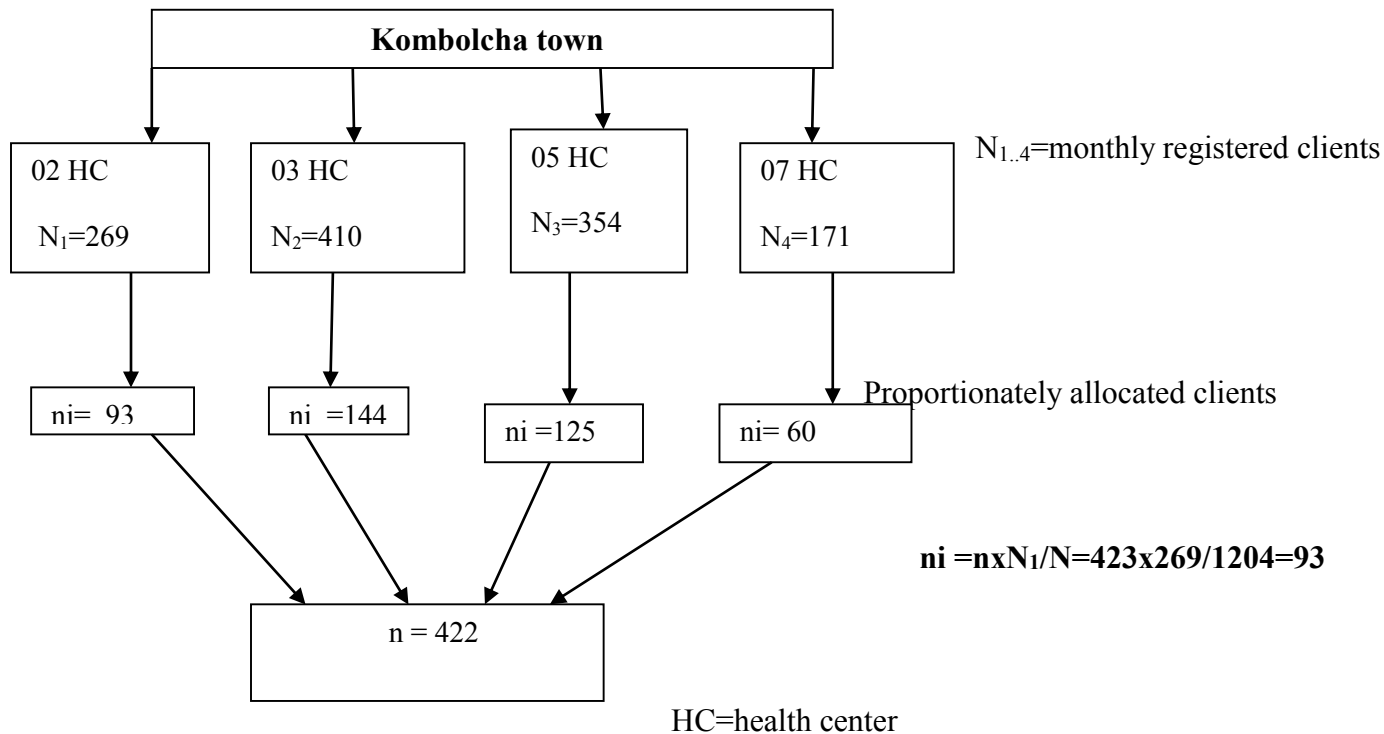
P= Population proportion estimate 50% since no data is available, W = Margin of error 5%

$$n = \frac{(1.96)^2 \times 0.50 \times 0.50}{(0.05)^2} = 384$$

Including the non-response rate of 38mothers the total sample size reached422, for in-depth interview ten nurses were included.

#### 4.7 Sampling Procedure

There are four health centers in the town which serves11 kebele (6 rural kebele and 5 urban kebele) the total sample required for the study were proportionally allocated based on the number of clients served per month in the four health centers. To compensate for non-response, 10% of the calculated sample size was added. The sample size required was 422 respondents were in the actual data collection. Systematic random sampling technique used, the first sample is randomly selected, then every third mother was selected for data collection until the required sample size are reached (figure 2).



**Figure 2: Sampling procedure**

02, 03, 05, 07=stands for kebele

N<sub>i</sub>=monthly served mother in each health center.

N = total monthly served mothers in four health center=1204.

n<sub>i</sub> = Proportionately allocated client's sample size required for the study from each health centers.

n= total sample size.

#### 4.8 Methods of Data Collection, Tools and Trainings

Exit interview with structured questionnaire was used to collect the data. The questionnaire includes questions on socio-demographic characteristics, maternal knowledge, process activities, access factors and check lists. It was administered by four BSc holders' data collectors. The data collectors were trained for two days by the principal investigator. For the qualitative part of the study an in-depth interview guide was developed. It was moderated by the principal investigator with assistant note taker and tape recorder was used to record verbal responses from health professionals.

**Exit interview with Structured Questionnaire:** mothers were interviewed about vaccination sessions and focus on characteristics of caregivers, types of antigens offered, potential missed opportunities, and health workers' information delivery, vaccination technique, waiting time, what immunizations the child received, providers' communication and behavior toward clients, reasons for bringing the child, the return date for the next vaccination, and understanding of possible adverse events following immunization.

**In-Depth Interview with semi structured questionnaire:** health professionals participated in in-depth interview from all health centers interviewed using a semi structured questionnaire until saturation points reached. Field guideline was used to facilitate in-depth interview.

**Before data collection:** template was prepared which contains space for the participants profiles, date data collection, place of data collection, types of their profession, their work experience, training taken, benefit of training, awareness about quality health care and in-depth interview question on their role in vaccination activities, perceptions of childhood immunization, quality care, accessibility, client satisfaction and knowledge of mothers about immunization.

**During data collection:** Prepare rough notes of interviews and Made audio record. Immediately after session type the notes soon, Prepare memo, listen to the audio tape then fully transcribe the passage, label and registered data, review objective, analyze contextual and demographic data.

**During analysis:** Carefully read through the data and begin coding, identify and summaries themes, interpret findings, triangulate data sources, made conclusions and recommendations.

#### **4.9 Data Quality Assurance**

The questionnaire was prepared in English and it was translated into Amharic language. The Amharic language questionnaire was used to collect data. The questionnaire was pre-tested on 10% mothers having child aged six week two years in selected health centers. The age range between 6 week to 2 years was selected, because vaccination is recommended in this age group and in order to minimize respondents recall bias. Adequate training was given for the data collectors. Everyone in the sample were assured for confidentiality, asked separately and away from health service providers and motivated to give true answers. Supervision was made by the principal investigator, by observing how data collectors were conducting the interview. At the end of each day interviewers submitted all completed questionnaire and each completed questionnaire was checked by the principal investigator for completeness and consistencies. All incomplete questionnaires were considered as nonresponse rate.

#### **4.10 Ethical Considerations**

Ethical clearance was obtained from school of Public Health, College of Health Science, Addis Ababa University Research and Ethical Committee (REC). An official letter was written from school of Public Health to Kombolcha city administration health office to get permission and support letter to each health center. The purpose of the study was explained to the study participants and a written consent was taken from participants to confirm whether they are willing to participate. Questionnaire was anonymous and not contains any critical questions, and confidentiality of the data was maintained.

#### **4.11 Data processing and Analysis**

##### **Before Data entry:**

- Each questionnaire edited and coded
- Data entry template prepared on EPI info version 7.0.8
- Data entry

##### **After data entry:**

- Compare report was generated
- Records were cross checked with hard copy
- After completing cleaning, exported to SPSS version 21

##### **Analysis:**

- First descriptive analysis was carried out to examine the distribution of each individual variable

- Bivariate analysis: to compare the distribution of variables
- Multivariate analysis to describe association and to control confounder
- 95%CI to determine the significance of the associations
- The type of rating scales selected was the quality scale for check list response format of excellent (3), good (2), fair (1) and poor (0) to provide greater variability and lesser skewness of responses. The number of respondent was the figure that was used for calculation of percent.

**The mean percent score** was calculated by multiplying the "excellent" column by 3, the "good" column by 2, the "fair" column by 1 and the "poor" column by 0 and then adding the resulting figures and dividing the sum by total number of respondents. The resulting figure were then divided by 3 and multiplied by 100 to convert the score into percent for meaningful presentation (50, 51) for quantitative results. The qualitative part was coded and analyzed using Open Code through thematic analysis by looking at across all the data then identifying the common issues that are raised and The thematic finding is transcribed, coded, major issues were gathered, rearranged, to make it soluble and presented by narration.

#### **4.12 Study variables**

##### **Dependent variable:**

Maternal satisfaction for vaccine services provided.

##### **Independent variables:**

- Socio-demographic factors(age, sex, job, marital status, education)
- Knowledge related factors(awareness, beliefs, attitudes, practices)
- Process related factors(information, greetings, vaccine harm, schedule, dose, waiting time)
- Quality care related factors(work hours, politeness, sanitation, availability, service given)
- Access related factors.(causes, frequency, time taken to clinic, waiting area)



#### 4.13 Dissemination of the Study

The results of the study will be disseminated to Addis Ababa University and also will be shared to the Amhara Regional Health Bureau, & woreda health offices targeted for the study and the health facilities which serve as documentary source. Discussion will be held with the health centers so as to share the findings and recommendations with the study population during different opportunities. the investigator will be worked with above mentioned bodies on how to use the results and recommendations of the study as in put for the health services. Finally results will be published in national and international journal for dissemination worldwide.

#### 4.14 Operational Definitions

**Immunization:** The process of introducing foreign antigen to the child body to produce antibody that help to fight against infectious diseases.

**Exit interviews:** Asking the client about the service after leaving the service provider room

**Satisfaction:** Assessing the attitude of client whether positive or negative toward the service provided by health worker.

**The mean:** is calculated by adding the questionnaire answered by the respondents and divided by to the total numbers respondents and multiplied by 100 to convert in to percentage.

**Satisfied mothers:** That respondent who answers above the mean score to specific satisfaction question about the service provided.

**Knowledgeable mothers:** Those mothers who answer above the mean score to specific knowledge question ‘about childhood immunization.

**Good quality care:** Those respondent who answers above the mean score to specific quality care question with response good and excellent=high quality, and poor and fair =low quality.

**Check list:** Contains general and special sheets with their component and criteria only without the standards.

**Saturation point:** The repeat ion of same replies for the same question but with different respondents.

**Immunization schedule:** Immunization schedule is a plan of action indicating the age and the appropriate interval of administration for each dose of the required.

**Full dose:** One dose BCG and measles, three dose DPT and polio, one dose PCV and Hib. Two dose Rota virus.

**Kebele:** is the smallest administrative unit in Ethiopia.

## 5. Results

### Socio demographic Characteristics of the Respondents.

From the total of 422 mothers 418 were included in the analysis, making the response rate 99%, of which the majority (97.1%) of respondents were above 20yrs old and four hundred one (95.9%) were female. Over three-quarter (75.7%) had no job and 408 (97.6%) were married. More than two-third (69.6%) were Muslims, and less than half (45.7%) had primary education.

Table1: Socio-demographic characteristics of mothers attending immunization service unit, kombolcha, Ethiopia, 2015, N=422

Variables	categories	Number (n=418)	Percent
Parents age(yrs)	15-19	12	2.9
	20-24	150	35.9
	25-30	179	42.8
	>30	77	18.4
parents sex	Male	17	4.1
	female	401	95.9
Mother's job	Yes	102	24.3
	no	316	75.7
Marital status	Yes	408	97.6
	no	10	2.4
Religion	Muslim	291	69.6
	Orthodox	127	30.4
Mother's education:	No education	79	18.9
	Primary	191	45.7
	Secondary	109	26.1
	university	39	9.3

Figure 3 shown the level of maternal satisfaction in kombolcha, Ethiopia, June2015, n=422

. As shown in the figure the level of maternal satisfaction was 71.9%. It is almost two and half of the study group.

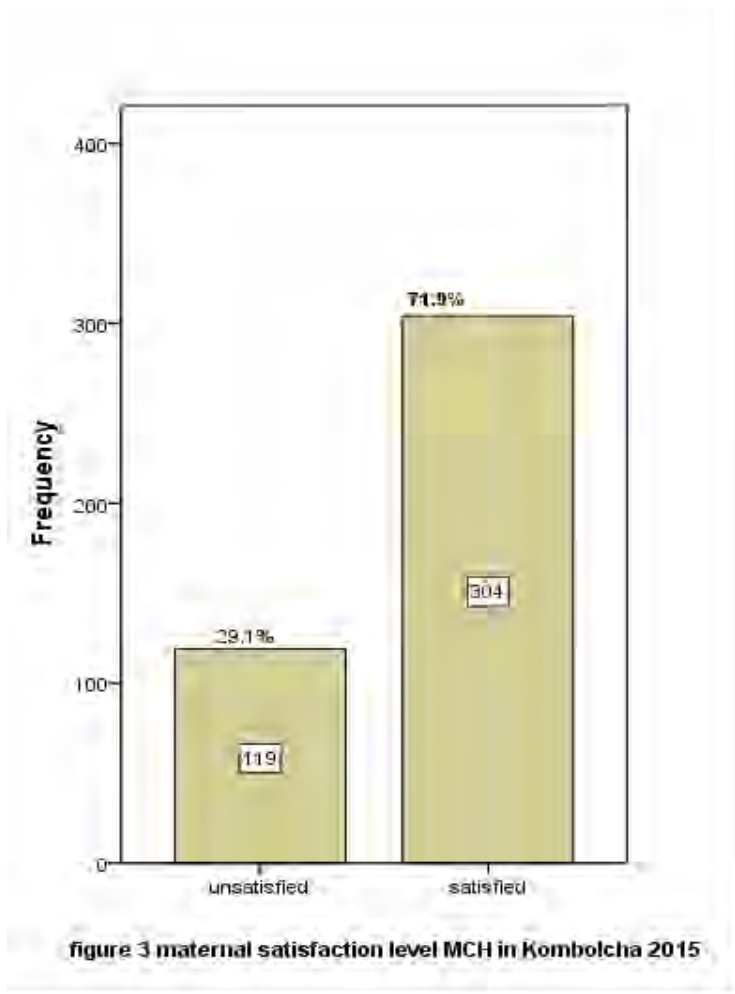


Table2 shows the maternal Knowledge score; Out of four hundred eighteen mothers, 357(85.4%) were knowledgeable about childhood immunization with the mean value 6.54, median value 6 and standard deviation 0.92. Majority of mothers 362 (85.6%) heard about EPI target diseases and 398 (95.2%) had knowledge about immunization preventable illness. More than three-quarter of mothers 322 (77.2%) had worried about their child, while crying when the vaccine is injected. Majority mothers 399 (95.5%) believe that, it is necessary to vaccinate breast feeding child. Almost all mothers 380(90.9%) agree to vaccinate their baby full dose and 383(91.5%) kept their appointment schedule.

Table 2: Maternal Knowledge score in attending immunization service units, Kombolch, Ethiopia, June 2015, n=422

Knowledge factors	Respondents categories	
	Yes n (%)	No n (%)
Have you heard of the EPI target diseases?	359(85.6)	59(14.4)
vaccine protected infectious illness	398(95.2)	20(4.8)
Do you mind fear of vaccine injury?	322(77)	96(23)
Is it necessary to vaccinate Breast feeding child?	399(95.5)	19(4.5)
Are you agreeing to immunize your baby full dose?	380(90.9)	38(9.1)
Are you informed next appointment schedule?	383(91.5)	35(8.4)

Table 3 shows maternal satisfaction about clinic service delivery system. The mean satisfaction value was 10.78 with standard deviation 1.29 and the median value was 10, maternal satisfaction level was 304(71.9%). Majority of mothers (85.4%) were happy when their children got vaccine. About two-third of mothers (63.9%) were not given greeting. As regard of waiting room cleanness, 362 (85.6%) of mothers said clean, about two-third of mothers (68.8%) got service in short time (<30min). Majority of mothers (66.7%) were not get information about current vaccine .Around two-third (64.3%) mothers didn't get education about vaccine. Majority of mothers (89.7%) were not told the dose of current vaccine administered.

Table 3: Process factors in selected immunization activities of health care services of respondents he

Process factors	respondents categories	
	Yes n (%)	No n (%)
Are you happy when your child got vaccine?	357(85.4)	61(14.6)
Does the nurse greet you?	151(36.1)	267(63.9)
Was the waiting room clean?	358(85.6)	60(14.4)
Was the Waiting time convenient?	147(35.2)	271(68.8)
Do you get information about current vaccine	139(33.3)	279(66.7)
Do you get education about vaccine	153(35.7)	265(63.3)
Are you told dose of current vaccine administered?	43(10.3)	375(89.7)

Table 4 shows accessibility of service. Regarding cause of visit; majority (97.4%) of mothers, visited facility for the vaccination, 2.6% of mothers visited for follow up. As respect of number of visits to the centers, 88.5% and 11.5% of mothers visited the center 1-4 times and  $\geq 5$  times in the last year respectively. As regard of accessibility to the centers, 172 (41.1%)of mothers reached in less than 30min,39.7% reached to clinic within 30 to 60min. Above two-third (66.5%) mothers wait for 15-30min. Regarding time spent in vaccination. 394(93.3%) of mothers spent 5-10 minutes, 5% spent<5 minutes and 1.7% spent >10minutes.

Table 4: Accessibility factors of service of mothers in kombolcha, Ethiopia, June 2015,n=422

accessibility factors	categories	n	%
Cause of visit:	Immunization	407	97.4
	Follow up	11	2.6
Frequency of visit	1 to 4	370	88.5
	$\geq 5$ times	48	11.5
Is the Clinic accessible in terms of time?	<30min	172	41.1
	30 to 60min	166	39.7
	>60min	80	19.1
Waiting time	<15min	42	10
	15-30min	278	66.5
	>30min	98	23.5
Time taken for procedure	<5min	20	5
	5-10min	390	93.3
	>10min	8	1.7

Table 5 shows Mothers 'rating score of quality care, about aspects of care provided by the MCH centers. The mean of quality care was 47.38 with standard deviation 2.41 and 68% of participants got good (high) quality care in the facility. The majority of mothers were rated, availability of vaccine (94%), effectiveness(91.4%), working hour(81.6%), sanitation and hygiene(74.9%), building and infrastructure(81.3%), skill of nurse(79.9) ,and documentation and registration(81.6%) as good. About three-quarter rated the service delivery of providers (74.9%), tools and equipment (78%), politeness of card room staff (77.5%), politeness of nurses( 80.8%), attitude of nurse(78) also good. About two-third rated side effect of vaccine clear up (62.9%), cleanness of clinic (61.5%) also good. Around two-quarter rated advantage of vaccine clear up (55.3%), cleanness of waiting area (53.6%) as good.

Table5: Mothers' rating score about aspects of care provided by the health centers in kombolcha, June2015, n =422

Aspects of care check list	Poor		Fair		Good		Excellent	
	n	%	n	%	n	%	n	%
Effectiveness(benefit of intervention)	0	0.0	21	5	382	91.4	15	3.6
Morning work hour	1	0.2	69	16.5	341	81.6	7	2.9
Side effect of vaccine clear up	18	4.3	128	30.6	263	62.9	9	2.2
Availability of vaccine	0	0.0	7	0.3	393	94	18	4.3
Sanitation and hygiene of clinic	3	0.7	72	17.2	343	74.9	0	0.0
Service delivery of providers	13	3.1	92	22.0	313	74.9	0	0.0
Tool and equipment availability	5	1.2	70	16.7	326	78	17	4.1
Building and infrastructure	5	1.2	61	14.6	340	81.3	12	2.9
Advantage of vaccine clear up	0	0.0	185	44.3	230	55	3	0.7
skill of nurses	0	0.0	84	20.1	334	79.9	0	0.0
Politeness of card room staffs	0	0.0	94	22.5	324	77.5	0	0.0
Politeness of nurses	0	0.0	80	19.1	338	80.8	0	0
Information and documentation	8	1.9	69	16.5	341	81.6	0	0.0
Attitude of nurse to clients	0	0.0	89	21.0	326	78	3	0.7
Cleanliness of waiting area	41	9.8	153	36.6	191	45.7	33	7.9
Cleanliness of examination room	8	1.9	155	36.6	256	61.2	0	0.0

Table 6 shows Factors affecting maternal satisfaction to childhood immunization. The significance level is fixed at  $p < .05$  and statistically significant. The results revealed that maternal satisfaction with immunization service was not significantly associated with socio demographic characteristics of mothers ( $p > 0.05$ ). Variables like age AOR=1.16(0.56,2.40), sex AOR=0.59(0.12,2.80), marital status AOR=1.29(0.55,3.01), employment AOR=1.12(0.54,2.30), religion AOR=1.17(0.70,1.94) and maternal education AOR=0.51(0.13,1.97) were not significantly associated with maternal satisfaction.

Table6: Logistic regression analysis for factors associated with socio demographic characteristics and mother's satisfaction, kombolcha, Ethiopia, June 2015, n=422

variables	categories	Maternal satisfaction		COR (95%)	AOR(95%CI)
		Satisfied n (%)	dissatisfied n (%)		
Parents age	15-19yr	7(1.7)	5(1.2)	1.23(0.34,4.48)	0.52(0.10,2.69)
	20-24yr	113(27)	37(8.9)	0.64(0.34,1.21)	1.30(0.61,2.80)
	25-30yr	128(30.6)	51(12.2)	0.79(0.43,1.45)	1.16(0.56,2.40)
	>30yr	53(12.7)	24(5.7)		1
Parent sex	female	289(68.7)	112(26.8)	1.10(0.35,3.43)	0.59(0.12,2.80)
	male	12(2.9)	5(1.6)		1
Employment	yes	78(18.7)	24(5.7)	0.87(0.48,1.58)	1.12(0.54,2.30)
	No	223(53.3)	93(22.3)		1
Marital status	yes	272(64.5)	107(26.2)	0.89(0.44,1.82)	1.29(0.55,3.01)
	No	32(7.7)	7 (1.6)		1
Religion	Muslim	196(46.9)	90(21.5)	0.55(0.59,1.49)	1.17(0.70,1.94)
	Orthodox	105(25.1)	27(6.5)		1
education	uneducated	54(12.9)	25(5.9)	1.44(0.45,4.59)	0.52(0.12,2.19)
	Primary	135(32.3)	56(13.4)	1.42(0.47,4.34)	0.51(0.13,1.97)
	Secondary	82(19.6)	27(6.5)	1	1
	university	30(7.2)	9(2.2)	2.10(0.41,10.36)	0.16(0.02,1.18)

AOR=adjusted odd ratio, COR=crud odd ratio, CI=confidence interval



Table 7 shows that maternal knowledge about the importance of childhood immunization. Bivariate and multivariate analysis of maternal knowledge variables; like Knowledge of EPI target illness AOR=0.74(0.29,1.83) ,vaccine prevent infectious disease AOR=0.82(0.23,2.95), vaccine necessary for baby AOR=0.52(0.8,3.42), get full dose AOR=1.47(0.61,3.57), kept appointment AOR=0.50 (0.17,1.46) were not significantly associated maternal satisfaction, but vaccine injuries fears were significantly associate with parental satisfaction(AOR=2.36(1.10,5.03).vaccine injury fear was significantly associated with maternal satisfaction, AOR(95%CI)= 2.36(1.10,5.03) in this study.

Table 7: Logistic regression analysis for knowledge factors and maternal satisfaction level, kombolcha, Ethiopia, June 2015,n=422

Knowledge factors	categories	Maternal satisfaction		Crude OR(95%CI)	AOR(95%CI)
		Satisfied N (%)	unsatisfied N (%)		
Know EPI target diseases?	Yes	262(62.7)	97(23.2)	1.26(0.53,2.99)	0.74(0.29,1.83)
	no	39(9.3)	20(4.8)		1
Prevent infectious disease	yes	285(68.3)	113(27)	1.19(0.34,4.12)	0.82(0.23,2.95)
	no	16(3.8)	4(0.9)		1
Vaccine injury fear	yes	241(57.7)	81(19.4)	0.39(0.19,0.79)	2.36(1.10,5.03)*
	no	60(14.3)	36(8.6)		1
Is necessary Vaccine	yes	284(67.9)	115(27.5)	1.50(0.30,7.53)	0.52(0.8,3.42)
	no	17(4.1)	2(0.5)		1
Will you inject baby full dose?	yes	275(65.8)	105(25.1)	0.70(0.31,1.59)	1.47(0.61,3.57)
	no	26(6.2)	12(2.9)		1
appointment	yes	272(65.1)	111(26.6)	1.84(0.67,5.02)	0.50(0.17,1.46)
	no	29(6.9)	6(1.4)		1

- Significant, AOR=adjusted odd ratio, COR=crud odd ratio, CI=confidence interval

Table 8 shows logistic regression analysis of the process factors associated with maternal satisfaction. Respondents who didn't get greetings (AOR: 3.556, 95% CI :( 2.29- 5.53)) were three point five times more likely unsatisfied. Respondents who didn't satisfied with room cleanness were five point five times more likely unsatisfied than counterpart (AOR =5.52, 95% CI= (1.79-16.95). Respondents who were unsatisfied with long waiting time (>30min) were twelve times more likely unsatisfied (AOR=12.23, 95 %=( 6.95-24.71). Respondents who didn't get information about current vaccine (AOR=12.09, 95%CI= (6.18-23.71) were twelve times more likely unsatisfied. Those who didn't get health education on vaccine (AOR=11.41, 95%CI= (5.68-22.93) were eleven times more likely unsatisfied than counterpart. study participant who didn't inform dose of vaccine (AOR=2.59, 95% CI= (1.03, 6.58) were two times more likely unsatisfied than reference group.

Table 8: Logistic regression analysis for process factors associated with childhood immunization service activities and a maternal satisfaction level, kombolcha, Ethiopia, June 2015,n=422

Process factors	Categories	Satisfaction level of mothers		Crude OR(95%CI)	Adjusted OR(95%CI)
		Satisfied n (%)	dissatisfied n (%)		
happy with getting vaccine	Yes	259(62.0)	102(24.1)	1	1
	no	43(10.6)	14(3.3)	1.04(0.57,1.91)	1.36(0.55,3.37)
Given Greetings	Yes	83(20.4)	67(16.0)	1	1
	no	219(51.8)	50(11.8)	3.56(2.29,5.53)*	3.52(1.85,6.68)*
waiting room cleanness	Yes	252(59.6)	105(26.0)	1	1
	no	52(12.2)	9(2.2)	2.52(1.20,5.30)*	5.52(1.80,16.95)*
Waiting time length	<= 30min.	72(17)	76(18.4)	1	1
	>30min	235(54.8)	38(9.7)	6.13(3.87,9.72)*	12.23(6.05,24.71)*
Information given on side effect	Yes	58(13.7)	80(19.4)	1	1
	no	246(58.8)	34(8.1)	9.40(5.80,15.22)*	12.09(6.19,23.71)*
Current vaccine type told	Yes	69(16.3)	82(19.4)	1	1
	no	23(5.6)	37(8.7)	7.55(4.71,12.10)*	11.41(5.68,22.93)*
Dose Told	Yes	26(6.1)	21(4.9)	1	1
	no	277(66.0)	94(23.0)	2.50(0.21,0.75)*	2.60(1.03,6.58)*

\*:-Indicates significant, AOR=adjusted odd ratio, COR=crud odd ratio, CI=confidence interval

Table 9 Logistic regression analysis, to show association between accessibility characters, and maternal satisfaction level. As cause of visit AOR=2.41(0.35, 16.70), frequency of visit AOR=1.13(0.49, 2.60), Waiting time AOR=2.04(0.99, 4.21), distance to clinic AOR=1.56(0.79, 3.06) time taken for procedure AOR=1.04(0.47, 2.31) were not associated. From various accessibility factors assessed quality care factor was associated with maternal satisfaction, AOR (95%CI) = 1.76(1.11, 2.79).

Table 9: logistic regression analysis to show accessibility characters associated with maternal satisfaction kombolcha, June 2015, n=422

Accessibility factors	categories	Maternal satisfaction		COR(95%CI)	AOR(95%CI)
		Satisfied n (%)	Unsatisfied n (%)		
Cause of visit:	Immunization	293(70.1)	114(27.3)	1	1
	Follow up	8(1.9)	3(0.7)	1.19(0.58,2.44)	2.41(0.35,16.70)
Frequency of visit	1 to 4times	265(63.4)	105(25.1)	1	1
	>5 times	36(8.6)	12(2.9)	0.74(0.18,3.01)	1.13(0.49,2.60)
Is the clinic accessible(distance)	<30min	121(28.9)	51(12.2)	1	1
	30 to 60min	130(31.1)	36(8.6)	0.72(0.41,1.27)	1.56(0.79,3,06)
	>60min	50(12)	30(7.2)	0.44(0.24,0.80)*	2.04(0.99,4.21)
Time taken for procedure	<5min	55(13.2)	20(4.8)	1	1
	5-10min	165(39.5)	59(14.1)	0.65(0.26,1.62)	1.04(0.47,2.31)
	>10min	81(19.4)	38(9.1)	1.35(0.79,2.29)	1.29(0.69,2.42)
Quality cares	Low quality	103(24.6)	33(7.9)	0.75(0.47,1.21)	1.76(1.11,2.79)*
	High quality	198(47.4)	84(20.1)	1	1

\*=significant, AOR=adjusted odd ratio, COR=crud odd ratio, CI=confidence interval

### **Client satisfaction**

This interview shows that most clients were satisfied with the service provided however there were some logistic and time problem, however most clients were satisfied with their immunization service delivery system.

### **Behavioral change**

The interview showed that mother's perception and attitude become improved due to health extension workers efforts and Health education during antenatal care brings these changes. We monitor every mothers when she forget her schedule thorough mobile phone and HEW.

### **Challenge**

The interview showed that challenge for their services were logistic and administrative problems were raised by all participants and also incentive discrimination.

### **Standard operating procedure**

The interview showed that, most health professional applied standard operating procedure and had awareness about quality health care and also have some problem on logistics and this may affect their level satisfaction

### **Accessible, affordable**

The interview showed that, all service for vaccination were free of charge and the clinic was accessible for most clients, however it is also far for those who come from rural area and they are not satisfied in this case.

### **Planning**

According to the interview, all they have many plans and work to achieve their settled plan in the near future based on the policy and the strategy of the country in order to satisfy their clients.

## **In-depth Interview Result**

A total of ten respondent's working in the immunization department with the age ranges from 20-44years were participated. Respondent's educational status varied from diploma to first degree graduates. Five of respondents answered that their clients were satisfied with the service they provided and few clients were complaining about room, crowdedness, and BCG and measles program. *“ most of our clients were satisfied , we conducted an assessment and get majority of clients were satisfied with our service and few customers were complained about card room ,waiting room, chairs and crowdedness , as well as the child and adult waiting room not separated, thermometers, weighing scales and pediatric sphygmomanometers, BCG and Measles schedules and so that the department asked concerned bodies for this problems ” 32 years old nurse*

Regard of mother's attitude most of health care providers replied that attitude and perception of care takers were changed through nearby service and antenatal visit health education.” *It is improved because care takers come and ask when the second schedule is in case of not informed well for the next appointment, this tells us they develop good health seeking behaviors, so I can say their attitude is changed “35years old nurse.* All respondents mentioned that, the most common challenge in the service delivery system were room problem, crowdedness on Monday and Thursday due to economical constrain, in one room two service provided which means one disturbs the other, this ideas shared by all health workers *“Room problem is the most dominant, which hinders the confidentiality of our clients because we utilize one room for two purposes at the same time which causes communication barrier.”* Three of the health workers replied that they utilize standard operating procedure while providing health service but one nurse said that don't know and one nurse not applied due different reasons.” *We applied some times, but not always due to some reason like room problem, Cleanness of room, BCG and measles' appointment make incomplete our service” 32 years Nurse.*

Regard of accessibility and affordability, four of the health care providers answered that all services were free charge and accessible to their clients, most health care providers comment that extra work needed to improve the quality of the service .The health center plan to improve the service delivery system step by steps.” *Our service delivery system become improved from time to time in quality and in quantity in order to satisfy our costumers” 25 years old nurse.* Four of the respondents replied similar answers repeatedly and it became saturated on respondents and stopped to avoid repetition of ideas.

## Discussion

The current study attempted to assess maternal satisfaction level and the important predictors that could contribute for improved utilization of childhood immunization. The level of maternal satisfaction observed in this study was higher than the study done in *jigjig a* (71.9% vs 53.2%) and the observed differences might be explained by the fact that the study populations in *Jigjig a* were more of pastoralist and the chance of skipping the services is high. When compared with some elsewhere studies done in Egypt (71.9% vs 95.2%), America (71.9% vs 93.0%), Nigeria (71.9% vs 95.9%), Beijing (71.9 vs 75.5%), and Timor (71.9% vs 97.0%), the present finding was low and the differences could be attributed due the differences in the setup of the vaccination services in the case of Egypt (2) and better quality of care in America (16), difference in method and set up in case of Nigeria (52) close to the current study Beijing and better reception and information delivery system in Timor (56) were cited as some of the important factors.

some cause of satisfaction like availability of drug (94%) ,effectiveness intervention (91%). working hours(86.8%) ,skill of personnel (80.1%) ,service is free of charge. some cause of dissatisfaction, fixed day service ,no greetings (63.3%), health information not given(66.9%) , environment cleanness (54.4%), schedule change, and crowdedness in the card room in the current study. cause of satisfaction in Nigeria drug availability, environment appearance and cause dissatisfaction clinic hours, date of immunization, location of clinic was 75%.In India cause of satisfaction were availability of service, interpersonal quality, professional competency and cause of dissatisfaction skill of health workers, waiting time, fulfillment of health facility and equipment, efficiency to treatment. According to UNICEF most cause of dissatisfaction were absence of health workers, poor staff attitude, distance, lack of drug, long waiting time

In this study, the majorities of mothers were above 20 years old and had completed primary/secondary or higher education. This finding is concordant with the study done in Congo where 95.0% of mother's age was above 20 years and 81.6% of mother's educational level was Primary/Secondary education (28). Likewise the findings in Egypt and Nigeria also concur with the present findings in terms of age and education (30, 27).

In the current study (85.6%) of mothers, were knowledgeable about childhood immunization and it is in conformity with the study done in Thailand which showed 82.4% of mothers who had adequate knowledge used the service (52)While the study in Lao PDR was lower than the present study and

revealed 60.5% of mother had adequate knowledge (53). The difference in Lao and Ethiopia could be explained by the fact that in Ethiopia the vaccine information access is better than LAO and Thailand.

In the present study, the knowledge of health care providers about quality and quality application program in relation to receiving training course was good. As regard the quality awareness, the majority of providers had idea about quality in health care and all of them know quality application program in the MCH centers.

In this study, process factors were significantly associated with maternal satisfaction level; activities like greeting, vaccine education, and dose of vaccine and waiting room cleanness have significant association with maternal satisfaction. Respondents who didn't get greetings (AOR: 3.556, 95% CI :( 2.29- 5.53)) were three point five times more likely unsatisfied. Respondents who didn't satisfied with room cleanness were five point five times more likely unsatisfied than counterpart (AOR =5.52, 95% CI= (1.79-16.95). Respondents who were unsatisfied with long waiting time (>30min) were twelve times more likely unsatisfied than reference group (AOR=12.23, 95 %=( 6.95-24.71). Respondents who were not got information about current vaccine (AOR=12.09, 95%CI= (6.18-23.71) were twelve times more likely unsatisfied. Those who didn't get health education on vaccine (AOR=11.41, 95%CI=(5.68-22.93) were eleven times more likely unsatisfied than counterpart. study participant who didn't inform dose of current vaccine(AOR=2.59,95%CI=(1.03-6.58) were two times more likely unsatisfied than reference group. Those who have got quality care were satisfied more likely than their counterparts, AOR (95%CI)=1.76(1.11-2.79). Similar study done in Egypt showed that facility and favorable environments in addition to individualization of care, orientation of patient; informational effectiveness and safety procedures were important factors affecting mother's satisfaction (30). Thus, the most powerful predictor for client satisfaction with government health services was the provider's behavior towards the clients, particularly respect and politeness. This aspect was much more important than the provider's technical competence (characterized by elements such as explaining the nature of the problem, physical examination, and giving advice (40). In this study, majority of mothers had accessed the clinics in less than 30min, 39.5% within 30 to 60min,18.9% >60min and the finding is in agreement with the *Jigjig a* (55), *Jemma* (30) and Egypt findings (27).

Waiting time had significant association with maternal satisfaction, majority of mothers (66%) have waiting time 15-30 minutes which is too much compared to a study done in Bangladesh which was 10min(41) fixed day schedule may be the cause in this study, 32 years old nurse reported that “ *most of our clients were satisfied , we conducted an assessment and get majority of clients satisfied with*

*our service and few customers complained about card room ,waiting room, chairs and table , thermometers, weighing scales ,pediatric sphygmomanometers ,as well the child and adult waiting room not separated, BCG and Measles fixed day schedules ”. A 27 years old Nurse explained that“Room problem is the most dominant, which hinders the confidentiality of our clients, because we utilize one room for two purposes at the same time, which creates communication barrier.” To reduce the waiting time and improve the maternal satisfaction, it is necessary to increase the number of staff in the health centers as well as availing more rooms (27).*

Regarding time spent in examination in this study majority respondents (94%) were spent 5-10 minutes, when compared with the study done in Bangladesh which reported that 52.7% of the case spending 5-9 minutes in examination (42), the figure in the present study is encouraging. Similarly, the study in Egypt documented that time spent in examination; 39.5% of cases spent 5-9 minutes (30) indicating better performances and the possible explanation for the difference is that in Ethiopia, no screening of child is done, no vaccine education given during the procedure and mass administration of vaccine (five children in examination room once) is the common experience.

The current study revealed that the quality care score (Qs) of immunization service was 68% good, as regard of the quality score of the structures of the studied clinics, which was 61.9% good. This finding is concordant with El-Menoufia University, of Egypt which found that the quality scores of the children clinics' was 61.3% (43) and Qalyobia governorate, Egypt which reported 66.3 % for QS (49). In both studies in El-Menoufia and Qalyobia reported that there was no enough chairs and table for nurses in every pediatric clinic which interfered with performance of their work. Likewise the essential primary equipment and instrument like thermometers, weighing scales and pediatric sphygmomanometers were not present in adequate numbers (45) is in agreement with current study. As regard the service assessment, the mean Qs percent of the immunization of this study was 57.3%. When compared with the study done in Egypt, the average QS performance was in agreement with current study. In similar study the average QS of the studied clinics performance was 49.5 % (30) which was close to this study. The current study is lower than a study in Egypt, reported that the Qs percent of performance were 70.7%which was higher may be method and setting explained.

In this study, most mothers were satisfied with different aspects of care. The highest average mean scores was for availability of vaccine (94%) followed by, morning work hour (81.6%), equipment (61.5%), Politeness of nurse (80.8%),skills of nurse (79.9% ), and cleanness of waiting room (45.7%). Similar finding was reported in Turkey for politeness of nurses (57.4%) (40). In the same breath, the



study conducted in Tanzania also reported that the availability of appropriate medication at the first point of contact with the health care system was one of the most important components of the quality of primary health care, and a primary determinant of service utilization and satisfaction (45). The observed low mean score observed in the present score may be overcome by generating high level of knowledge and awareness among the mothers through encouraging maternal active participation and motivating the health staffs to meet the objective of the health center by providing quality health services.

**Strength of the study:**

- The quantitative cross sectional survey was triangulated with an in-depth interviews
- Factors that have a potential to influence maternal satisfaction level were included and multivariable regression analysis was used to control the confounders.
- There was high response rate.

**Limitation of the study:**

- This study was self-report of socio-demographic characteristics, child's immunization history, and maternal perception of the childhood immunization program. Self-report has a tendency to introduce recall bias.
- Mothers may also want to answer according to what they think are socially acceptable and introduce information bias. These conditions can either cause overestimation or underestimation of effects.
- Other limitations were unavailability of researches to the related topics for comparisons.
- Although there are a variety of vaccinations available to children globally, the present study was limited to research on vaccinations commonly used in Ethiopia and considered those who had accessed to the facility

## **Conclusion**

The study concludes that the maternal satisfaction with services has been shown to be associated with childhood immunization. Maternal satisfaction with immunization service process, quality care and access factors were associated significantly with maternal satisfaction level.

- Skills of health team diagnosis and treatment of children and courtesy of health professionals had the highest average mean score among aspects of care in satisfying the users.
- In this study socio demographic behaviors and knowledge of mother were not significantly associated with maternal satisfaction.
- Procedural activities, access and quality cares were significantly associated with maternal satisfaction.
- There is Inconvenience in BCG and measles service schedule(fixed day service)

## **Recommendation**

### **For government/stakeholder/**

- In order to maximize and optimize maternal satisfaction, EPI service hours should be extended and fixed day should be avoided.
- The MOH needs to ensure an uninterrupted supply of vaccines and associated supplies around the year.
- Separate waiting and examination room should be organized for EPI.

### **For institutions/organizations/**

- Health facilities should improve on the service process system like greeting, quality cares, cleanness of room, reduce waiting time, crowdedness in the card room, give health information and education on vaccine, and provide immunization services every day.
- Vaccine information should be delivered every day before vaccination started.
- Parents should be educated on the event of vaccine-induced adverse reaction.
- One focal person should be assigned without rotation for EPI department.

### **For researchers**

- Community base study is important to know the overall satisfaction level of care takers.
- Scientist should develop individual dose vaccine for BCG and measles to avoid fixed day schedule.
- Combined dose vaccine drugs preparation is important to avoid multiple injection site injuries in single day vaccination for every child.

## 6 References

1. Bates AS, Wolinsky FD. Personal, financial, and structural barriers to immunization in socio economically disadvantaged urban children. *Pediatrics*. 1998; 101:591-596.
2. Abbas H. Maternal satisfaction about childhood immunization in primary health care center, *PeerJ PrePrints* 2013; 1:171.
3. Linder-Pelz S. Social psychological determinants of patient satisfaction: a test of five hypotheses. *Social Science & Medicine*. 1982; 16(5):583-9.
4. Williams B. Patient satisfaction: a valid concept. *Social Science & Medicine*. 1994; 38(4):509-16.
5. Assefa F, Mosse A. Assessment of Clients satisfaction with health service deliveries at Jimma University specialized hospital. *Ethiopian Journal of Health Sciences*. 2011; 21(2):101-10.
6. Federal Minister of Health (FMOH). Planning and programming department health and health related indicators 2007/2008 Addis Ababa-Ethiopia.
7. **Haddad S**, Fournier P, Machouf N, Fassinet Y. What does quality mean to lay people? Community perceptions of primary health care services in Guinea. *Social Science & Medicine*. 1998; 47(3):381-94.
8. Baker R. Development of a questionnaire to assess patients' satisfaction with consultations in general practice. *The British Journal of General Practice*. 1990; 40(341):487.
9. Jatulis DE, Bundek NI, Legorreta AP. Identifying predictors of satisfaction with access to medical care and quality of care. *American Journal of Medical Quality*. 1997; 12(1):11-7.
10. Jackson JL, Chamberlin J, Kroenke K. Predictors of patient satisfaction. *Social Science & Medicine*. 2001; 52(4):609-20.
11. Luman ET, McCauley MM, Shefer A, Chu SY. Maternal characteristics associated with vaccination of young children. *Pediatrics*. 2003; 111(5 pt 2):1215-1218.
12. Matsumura T, Nakayama T, Okamoto S, Ito H. Measles vaccine coverage and factors related to uncompleted vaccination among 18-month-old and 36-month-old children in Kyoto, Japan. *BMC Public Health*. 2005, 5:59.

13. Torun SD, Bakirci N. Vaccination coverage and reasons for non-vaccination in a district of Istanbul. *BMC Public Health*. 2006, 6:125.
14. Gust DA, Strine TW, Maurice E, et al. Under immunization among children: effects of vaccine safety concerns on immunization status. *Pediatrics*. 2004; 114(1):e16-e22.
15. Blumenfeld SN. Quality assurance in transition. *Papua New Guinea Med J*. 1993; 36(2):81-89.
16. Factors contributing to suboptimal rates of childhood vaccinations in Vermont *J Child Health Care* 2014; 0:2014 1367493514530955v1-1367493514530955
17. Barnett B. Women's views influence choice. *Network*. 1995; 16(1):14-1.
18. Akin JS and Hutchinson P. Health-care facility choice and the phenomenon of by-passing. *Hlth Policy Plann*. 1999; 14(2):135-15.
19. Masatu MC, Klepp KI and Kvale G. Use of health services and reported satisfaction among primary school adolescents in Arusha, Tanzania. *J Adol Hlth*. 2001; 28(4):278-287.
20. Malata M. First-time mothers' satisfaction with labor and childbirth information received: a Malawian perspective. *Clin Excellence in Nursing Practice*. 2000; 4(2):83-89.
21. Whitworth J, Pickering H, Mulwany F, et al. Determinants of attendance and patient satisfaction at eye clinics in south-western Uganda. *Hlth Policy and Plann*. 1999; 14(1):77-81.
22. Gust DA, Strine TW, Maurice E et al. Under immunization among children: effects of vaccine safety concerns on immunization status. *Pediatrics*. 2004; 114(1): e16-e22.
23. Bennett P, Smith C. Parents attitudinal and social influences on childhood vaccination. *Health Educ Res*. 1992; 7(3): 341-348.
24. Ahmad N, Akhtar T, Roghani MT, Ilyas HM, Ahmad M. Immunization coverage in three districts of North West Frontier Province (NWFP). *J Pak Med Assoc*. 1999; 49(12): 301-5.
25. Provincial EPI Directorate. Expanded Programme of Immunization: Logistics Inventory. 2000. Punjab, India. Department of Health.
25. Federal Ministry of Health Comprehensive MultiYear Plan 2011 -2015 Federal Ministry Of Health Addis Ababa December, 2010

26. International Health and Development Associates. 18133 Coastline Drive, Suite 4A, Malibu, CA 90265.
27. Uzochukwu B S C. Community satisfaction with the quality of maternal and child health services in southeast Nigeria, *EAST AFRICAN MEDICAL JOURNAL* 2004; 81 (6):293.
28. Peter M Harrington, Catherine Woodman, William F Shannon. Low immunisation uptake: Is the process the problem. *J Epidemiol Community Health*. 2000; 54(5):394.
29. Rashmi and B Vijaykumar Quality Assessment of Child Care Services in Primary Health Care Settings of Central Karnataka (Davangere District) *Indian J Community Med*. Jan 2010; 35(1): 24–28 doi: 10.4103/0970-0218.62549
30. Eman Shokry Abd Allah<sup>1</sup>, Eman Elsayed Mohamed Elsabagh<sup>2</sup> and Samah El Awady  
Mother's Satisfaction with the Quality Care Of Maternal & Child Health Services At Maternal and Child Health Centers in Zagazig City, *Life Science Journal* 2012; 9(3)
31. Central Statistical Agency Addis Ababa, Ethiopia ICF International Calverton, Maryland, USA March 2012, EDHS 2011; 158-162.
32. Aaron S. Wallace, Tove K. Ryman, and Vance Dietz, Experiences Integrating Delivery of Maternal and Child Health Services with Childhood Immunization Programs: Systematic Review Update, *Infect Dis*. (2012) 205 (suppl 1): S6-S19. doi: 10.1093/infdis/jir778.
33. Federal Democratic Republic of Ethiopia office of population and housing census commission central statistics authority .the 1994 population and housing census of Ethiopia results of Amhara region vol.1 statistical report on population size and characteristics .December 1995 Addis Ababa.
34. South Wollo Zone health desk office .mid-year activity report 11997.ec35 wallace hm and giri k health care of women and children in developing countries. *phc*, (1990): 19: 80-84
35. Al-qutobr, mawajdeh s, raad f the assessment of reproductive health services: a conceptual framework for prenatal care' health care for women international, (1996): 17: 423-434.
36. Awadalla h i, kamel e g, mahfouz e m and refaat t m evaluation of maternal and child health services in el-minia city, *Egypt journal of public health*, (2009): 17 (5): 29-32.

37. United nation children fund MDG report 2005.available at <http://www.unicef.org>.
38. Camps, Statistical year book, ARE assessment of family planning services in Egypt. Population policy occasional (1992): paper No.2.
39. Aldana JM, Piechulek H& Ahmed ASClient satisfaction and quality of health care in rural Bangladesh, Bulletin of the World Health Organization, (2001): 79 (6): 515
40. Gurdal P, Cankaya H, Onem E, Dincer Sand Yilmaz T: Factors of patient satisfaction in a dental faculty clinic in Turkey.Comm Dent Oral Epidemiol, (2000): 28 (6): 461-9.
41. Whittaker M, Rural women's perspectives on quality of family planning services. Dhaka, Bangladesh, ICDDR/B, (1993): (Working Paper No. 85 MCH-FP Extension Project). 3
42. Hammouda M, Quality assessment of child health services provided by maternal andchild health centers in Shebin El-Kom City.M.Sc. Thesis in Public Health, Faculty ofMedicine, El- Menoufia University (2000).
43. Stinson W, Growth monitoring and promotion: A review of experience in seven countries. Service quality assessment series, PRICOR, Center for Human Services, Bethesda, USA (1991).
44. Morgan M and Reynolds, A Daysurgery units: Are they attractive to nurse? JAdv Health NurseCare(1995):1(2):59-74.
45. Msamanga G I, Urassa DP, and Mujinja PG, Equity of access to public, privatenot-for-profit and private for profit health facilities in two regions of Tanzania. BamakoInitiative Operations Research ProgrammeResearch(1993): Paper No. 4.
46. Miller RA, Ndhlvon L, Gachara MM andFisher AA, The situation analysis study of family planning program in Kenya.Studies(1991).
47. Fitzpatrick R, Surveys of patient satisfaction: I. Important general considerations. Brit. Med. J. 1991; 302: 1129-1132.in Family Planning, 22 (3): 131-43.
48. Shaker R, Quality assessment of maternal health services provided by primary health care facilities in Qalyobia governorate. M.D. Thesis in Community Medicine, (2005): Benha Faculty of Medicine
49. WHO, User's assessment of healthcare. Regional Office for Eastern Mediterranean, Annex 5, (1995): PHC/114/E/L.

50. WHO, Quality assurance and improvement in health systems with special reference to primary health care: A shared responsibility. Technical paper, EM/RC 47/7, Regional Committee of Eastern Mediterranean, forty-seventh sessions (2000).
51. Sawhney M, Favin M. Epidemiology of the unimmunized child: findings from the grey literature. Arlington, VA: John Snow, Inc. immunization basics Project; 2009. Available from: [http://www.who.int/immunization/sage/ImmBasics\\_Epid\\_unimm\\_Final\\_v2.pdf](http://www.who.int/immunization/sage/ImmBasics_Epid_unimm_Final_v2.pdf).
52. Odusanya OO, Alufohai EF, Meurice FP, Ahonkhai VI. Determinants of vaccination coverage in rural Nigeria. *BMC Public Health*. 2008; 8:381.
53. Williams SJ, Calnan M. Key determinants of consumer satisfaction with general practice. *Fam Pract*. 1991; 8(3):237–242.
54. Ali Abdi Salah, Nega Baraki, Gudina Egata, Wanzahun Godana. Evaluation of the Quality of Expanded Program on Immunization Service Delivery in Primary Health Care Institutions of Jigjiga Zone Somali Region, Eastern Ethiopia. *European Journal of Preventive Medicine*. Vol. 3, No. 4, 2015, pp. 117-123. doi: 10.11648/j.ejpm.20150304.14
55. Lankester T. Setting up community health programmes. Practical manual for use in developing countries, 2nd ed. London, pp153-165
56. Amin R, de Oliveira TJCR, Da Cunha M, Brown TW, Favin M, Cappelier K. Factors (1991): limiting immunization coverage in urban Dili, Timor-Leste. *Glob Health Sci Pract*. 2013; 1(3):417-427. <http://dx.doi.org/10.9745/GHSP-D-13-001156>.



### 7 Annex I: English Version Questionnaire

Informed consent form (English version) to do an interview on maternal satisfaction toward childhood immunization among children aged 6-36 month in Kombolcha Town in Amhara region

Five **solid rules** that must be followed by interviewer to select eligible study participant before reading the information sheet and asking verbal consent form.

**Rule 1:** child **must be** with care giver

**Rule 2:** care giver **must be** can communicate verbally

**Rule 3:** age group of the child **must be** within 6-36 month

**Rule 4:** child and mother **must** live for six month in Kombolcha

**Rule 5:** persistent diarrhea, severe burn, coma not interviewed

N.B. IF the visited mother and child don't full fill all the aforementioned rules please stop here the interview and wait the next participant. Give ID number only for those who full fill all the criteria.

I: Information sheet

Greeting: Good morning /good afternoon MAM!/DADY

My name is \_\_\_\_\_ address \_\_\_\_\_

I am working as a data collector in study conducted by Abdu Hussien who is a postgraduate student of Addis Ababa University, school of public health the objective of the study is to assess maternal satisfaction toward childhood immunization in Kombolcha health centers. The reason for why the researcher focused on this research area is, there are different governmental and nongovernmental organizations that run on the promotion of childhood vaccination but child hood immunization is still recognized as a deep rooted public health problem across the country and the target is not achieved. Now you get the chance to participate in this study and the information that will get from you is very crucial to made valid conclusion on immunization

Service delivery system. I would very much appreciate your participation. If you are ok to participate, the following activity will be done: 1) yours and your child age, order of vaccine, type of vaccine, level of satisfaction ,about accessibility ,quality of care and care provider ,knowledge of mother will be measured, and 2) there will be 20-30 minute interview that focused on childhood immunization, environmental condition, socio-demographic characteristic,

Participation will not have any harm and a direct financial or other benefit for you but your information is invaluable to achieve the objective of the research. Whatever information you provide it will be kept confidentially and to assure that we will use code number , name is will not be written and in addition the document will not be shared with anyone other except people participating in this study.

Participation is purely voluntary, and if I come up with any question that you don't want to answer, just let me know it and I will go on to the next question. Besides that, you will have 100 % freedom to stop the interview at any time. I hope you will participate in this study since your information is very crucial.

At this time, do you want to ask me anything about this research?

May I begin the interview now? If she said 'yes' proceed the next interview ,if said 'no' ,say thank you and go to the next participant

Signature of interviewer: \_\_\_\_\_ Date:- \_\_\_\_\_

Address of the principal investigator

Address of research ethics committee

Phone number: 0911360468

Phone number: \_\_\_\_\_

Gmail: abduhussine@gmail.com.

Email: -----

Address of the interviewer

P.O. Box \_\_\_\_\_

Phone number: \_\_\_\_\_

Email: \_\_\_\_\_

## 8 Annex II: Verbal informed consent form

I briefly informed and clearly understood the objectives, the associated risk and benefit of the will be conducted by Abdu Hussien. Since it doesn't affect my personnel life in any way, I here verbally approve my consent to voluntarily participate in the study as an interviewee.

Name of interviewer \_\_\_\_\_ signature \_\_\_\_\_

Address of the principal investigator

Address of research ethics committee

Phone number: 0911360468

Phone number: \_\_\_\_\_

Email: abduhussine@gmail.com.

Email: : \_\_\_\_\_

Address of the interviewer

P.O. Box \_\_\_\_\_

Phone number: \_\_\_\_\_

Gmail: \_\_\_\_\_

ADDIS ABABA UNIVERSITY  
COLLEGE OF HEALTH SCIENCES  
SCHOOL OF PUBLIC HEALTH

ID: \_\_\_\_\_

**9 III. QUANTITATIVE QUESTIONNAIRE (ENGLISH VERSION)**

Structured interviewer administered Questionnaire prepared to assess maternal satisfaction toward childhood immunization among Children Aged 6-36 Month in Kombolcha town

General direction for the interviewer before conducting the interview

Check whether the questionnaire has all parts and pages including this page?

Check the questionnaire contains socio-demographic characteristics, knowledge of mother ,satisfaction question ,quality care tools ,health care provider characteristics, knowledge of health care provider about quality care , environmental condition,

## 10 Annex iii – Questionnaire

Modified data collection form

	Patient ID number	_____
	Collected by	_____
SECTION I: socio-demographic characteristics of répondent		
101	1.sex of child	1 male      2 female
102	Age of child	
103	2.Age of the mother	
104	sex of parent	1 male 2.female
105	Religion	1. Muslim 2.Orthodox 3.Protestant &others
106	Educational status	1. illiterate      2.primary(1-8) 3. Secondary (9-12) 4. Diploma 5.degree and above
107	Occupational status	1 employed 2.unemployed
108	Marital status	. 1. Married. 2.not married 3 divorced 4,widowed 5.separeted

Section 2: Knowledge of Women about immunization

201 Have you heard of the EPI target diseases?	1 yes	2 No
202 is it possible to protected infectious disease by vaccines?	1 yes	2 no
203 do you mind when your baby crying, while the vaccine is injected?	1. Yes.	2. No
204 Is it necessary to vaccinate a child who is breast-feeding?	1. Yes	2 No
205. Are you agree to immunize your baby full dose?	1 yes	2.no
206. Are you keep an appointment schedule?	1 yes	2 no

Section 3: health care process questions

301 Are you happy when your child got vaccine?	1. Yes	2.No
302 Did the health team greet you?	1. Yes.	2. No
303 is the waiting place clean?	1. Yes	2.No
304 Was the waiting time long? in min.		
305 Are you given information about vaccine?	1 yes	2. No
306 Was there appointment for today?	1. Yes	2.No
307 Did the health care worker tell you the type of the Vaccine your child taken?	1. Yes	2. No
308 Did the health care worker tell you the dose of the Vaccine your child taken?	1 yes	2.No

:

Section 4: Quality of Care Factors tools check list

Aspects of care check list	Mothers n	Poor		Fair		. Good		Excellent	
401.Effectiveness of vaccine									
402.Morning work hour									
403.Side effect of vaccine									
404.Availability of vaccine									
405.Sanitation and hygiene									
406.activities of providers									
407.Tools and equipment availability									
408.Building and infrastructure									
409.Advantage of vaccine clear up									
410.Skills of nurse									
411.Politeness of registers									
412.Politeness of nurses									
413.Information and documentation									
414.Attitude of nurse									
415.Cleanliness of waiting area									
416.Cleanliness of examination room									

Section 5: Access Factors question

variable	categories
501.Cause of visit:	1 .Immunization 2 .Follow up
502. Is the clinic accessible?	1.Yes 2 .No
503. For how long you Wait? (time minutes):	1 <15 2 .15-29 3 30-60
504. Time spent for Vaccination?	1.<5 minutes 2.5-10 minutes 3 .>10 minutes
505.Is there any payment in the clinic For vaccine?	1.Yes 2.NO



## 11: Information sheet for in-depth interview

My name is \_\_\_\_\_ I am working as a data collector in this study conducted by Abdu Hussien who is a postgraduate student of Addis Ababa University, school of public health. The objective of the study is to assess maternal satisfaction toward childhood immunization in Kombolcha health centers. The reason for why the researcher focused on this research area is, there are different governmental and nongovernmental organizations that run on the promotion of childhood vaccination, but childhood immunization is still recognized as a deep rooted public health problem across the country and the target is not achieved. Now you get the chance to participate in this study and the information that will get from you is very crucial to make valid conclusion on maternal satisfaction on immunization Service delivery system. I would very much appreciate your participation. If it is your will to participate, the following activity will be done: 1) your age, sex, work experience, type of profession, responsibility in the health center, training type, awareness about quality service, awareness about quality care program application, clients satisfaction, about accessibility, knowledge, perception and practice, of care givers will be measured, and 2) there will be 20-30 minute for interview.

Participation will not have any harm and a direct financial or other benefit for you, but your information is invaluable to achieve the objective of the research. Whatever information you provide it will be kept confidentially and to assure that we will use code number, tape record if you are willing full, name will not be written and in addition the document will not be shared with anyone other except people participating in this study.

Participation is purely voluntary, and if I come up with any question that you don't want to answer, just let me know it and I will go on to the next question. Besides that, you will have 100 % freedom to stop the interview at any time. I hope you will participate in this study since your information is very crucial to improve, redesign, and scale up the client satisfaction level in the health centers as well as in the country. There will be a facilitator who will ask the group the relevant question about you and your process activities. All information are secured and confidentially kept in the principal investigator and destroyed immediately when the study is finalized.

At this time, do you want to participate in interview session? Ask me anything about this research? Can we continue the session? Yes, start the session, if no, go to next.

Signature of interviewer: \_\_\_\_\_ Date:- \_\_\_\_\_

## Guidelines for in-depth interview for health care providers

- i. Personal and work characteristics
- ii. Health care providers according to their knowledge about quality care and quality program application
- iii. in depth interview point to be raise on session

1. Do you believe that your client is satisfied in the service you provided (process)
2. How evaluate the attitude and perception of mother who come for child vaccination
3. What hinder the service delivery system (infrastructure, administrative, economy, attitude?)
4. Did follow standard operating procedure while delivering vaccination (quality care)
5. Is the service accessible timely?
6. What is your plan to improve the service delivery system?

Personal and work characteristics of the studied health care providers in the MCH center

. Variables	categories
Age (years):	
Gender:	1. Females 2 .Males
Who add minister the vaccine?	Health officers  Nurses
How long you work in the clinic (year):	1.<1  2.1-4  3.5-9  4.>10
Are you receiving training course(s):	Yes  No
Duration of training courses :	1.One week  2.Two weeks  3.Three weeks  4.One month
Type of training course(s) you took	1.Theoretical  2. Practical      3. Both
Benefits of training courses :	1.Complete  2.Partial

Health care providers according to their knowledge about quality care and quality program application.

variables	categories
Do you have awareness about quality:	Yes No
Do you have awareness about quality application program:	Yes No
Do you have awareness about vaccine side effect to clear up for clients	Yes No

Semi structured question for health care provider in depth interview

1. Did you believe that your client is satisfied in the service you provided?
2. How evaluate the attitude and perception of mother who come for child vaccination?
3. What hinder the service delivery system?
4. Did follow standard operating procedure while delivering vaccination?
5. Did the service accessible timely?
6. What is your plan to improve the service delivery system?

## 12 Annex – IV: Information Sheet

Information Sheet for maternal satisfaction toward child hood immunization services at health centers in Amhara region Kombolcha town Ethiopia.

Addis Ababa university school of public health

Name of the Principal Investigator: Abdu Hussien

Name of the organization: Addis Ababa University School of Public Health

Name of the Sponsor: Addis Ababa university school of public health

Information Sheet prepared for participants at MCH clinics of health centers in combolcha city, Ethiopia that studies maternal satisfaction toward childhood immunization and its associated factors at health centers in Amhara region Combolcha town Ethiopia

### Introduction

This information sheet is prepared by the investigator whose main aim is to study maternal satisfaction toward child hood immunization and its associated factors at health centers in amhara region combolcha town Ethiopia

Purpose: The purpose of this research is to studies maternal satisfaction toward child hood immunization and its associated factors services at health centers in Amhara region combolcha town Ethiopia immunization is fundamental component to the management of infection. It can facilitate family or community support networks and reduce morbidity and mortality through better preventive management of the illness.

Procedure: Service utilizes interview questionnaire: It was used to collect data relevant to topic of the study. Clarification of points related to presentation of users satisfaction: The type of rating scales selected was the quality scale. The response format is excellent (3), good (2), fair (1) and poor (0) to provide greater variability and lesser skewness of responses. The number of respondent was the figure

that was used for calculation of percent. The mean percent score was calculated by multiplying the "excellent" column by 3, the "good" column by 2, the "fair" column by 1 and the "poor" column by 0 and then adding the resulting figures and dividing the sum by total number of respondents. The resulting figure was then divided by 3 and multiplied by 100 to convert the score into percent for meaningful presentation (WHO, 1995), Confidentiality and Anonymity: The information that we were collected from this study was kept confidential. Persons to contact: If there is any question, you can contact any of the following individuals and you may ask at any time you want:

Abdu Hussein

Tel: +251 0911360468

E-Mail: [abduhussine@gmail.com](mailto:abduhussine@gmail.com)

Dr Jemal Haidar

1. Tel: 118962049

**Assurance of investigator:** I am undersigned agree to accept all responsibilities for the scientific and ethical conduct of the research project. I was provide timely progress report to my advisor and seek the necessary advice and approval from my primary advisors in the course of the research. I was communicate timely to my advisors all stakeholders involved in the study including any source of funding for this research.

Name of the student: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Approval of the primary Advisors

Name of the primary advisor: \_\_\_\_\_

Signature:

\_\_\_\_\_