

Maternal satisfaction towards childhood immunization service and associated factors among mothers attending Health posts, in Gombora woreda, Hadiya zone, South Ethiopia.



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Public Health

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ABSTRACT

Background: Maternal satisfaction is considered as one of the desired outcomes of health care and it is directly related with utilization of health services. Child 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 child health care out comes.

Objectives: To assess maternal satisfaction towards childhood immunization service and associated factors among mothers attending Health posts in Gombora woreda, Hadiya zone, south Ethiopia.

Methods: A facility based cross sectional study was conducted among 382 mothers from March to Apr 2016 in Gombora woreda. Consecutive sampling technique was used to select mothers who were included in the study. Exit interviews and in-depth interview methods were used to collect the data. The data were entered to Epidata version3.1 and analyzed by using SPSS version20. Descriptive statistics, bivariate analysis and multivariable logistic regression analyses were employed to identify factors associated with satisfaction.

Result: sixty six point two percent (253 of 382) of the mothers were satisfied towards childhood immunization service provided. Greetings of the mother had statistical significance with maternal satisfaction towards child hood immunization, Mothers who have got greetings by care providers were more likely to be satisfied as compared with Mothers who have not got greetings AOR=5.4 (2.6-11.2). Mothers who got service within short waiting time (<15min) were more likely to be satisfied compared with Mothers who were served in long waiting time (30-60min) AOR=6.2 (2.3-16.6), mothers who have got vaccine information were more likely satisfied than who haven't got vaccine information AOR=7.4(3.8-14.6).Mothers who were told about types of vaccine were more likely satisfied than Mothers who were not told about types of vaccine AOR=3.5(1.7-7.02)

conclusion and recommendations: This study revealed that the level of maternal satisfaction towards childhood immunization was 66.2%. Improving information provision on immunization and greetings the clients was recommended. It was suggested that creating mechanism to reduce long waiting time can improve client satisfaction.

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Acronym

WHO- The World Health Organization

EPI -Expanded Programme on Immunization

EFY-Ethiopian Fiscal Year

SNNPR-South Nation Nationality Peoples Region

FMOH-Federal Ministry of Health

BCG- Bacilli Calmette Guerin

OPV –Oral Polio Vaccine

DPT-Dephteria, Pertusis ,Tetanus

UNICEF-United Nation Children Emergency Funds

EDHS-Ethiopia Demographic and Health Survey

HC-Health Center

HP-Health Post

HF-Health Facility

MCH- Maternal and Child Health

MDG- Millennium Development Goal

PHCU-Primary Health Care Units

HEWs-Health Extension Workers

HSDP –Health Service Development Programme

FJHW- Female Junior Health Workers

VPDs-Vaccine Preventable Diseases

IDI- In-Depth Interview

HepB –Hepatitis b

Hib –Haemoflus Influenza type b

SPSS- Statistical Package for Social Science

Qs- Quality scale

PCV-Pneumococcal Conjugate Vaccine

RED-Reaching Every District

FP-Family Planning

ANC-Antenatal Care

AOR-Adjusted odds ratio

COR-Crude odds ratio

CI-confidence Interval

CHAPTER ONE: Background

1.1. Introduction

The World Health Organization (WHO) identified the need for public health intervention and in 1974 initiated the Expanded Programme 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]. In Ethiopia, routine immunization was launched in 1980 with the six conventional antigens provided for children below two years of age. The schedule was revised in 1986 to include only infants less than one year in line with the global target. In recent years, Ethiopia has successfully introduced additional antigens into the routine schedule, resulting in the protection of millions of children from vaccine-preventable diseases. Haemophilis influenzae type B and Hepatitis B vaccine were introduced in the form of pentavalent combination vaccine in 2007; Pneumococcal conjugate Vaccine (PCV) 10 and Rotavirus vaccine were introduced in 2011 and 2013, respectively[2].

Immunization remains one of the most important public health interventions and a cost effective strategy to reduce both the morbidity and mortality associated with infectious diseases. Over two million deaths are delayed through immunization each year worldwide [3]. Despite this, vaccine preventable diseases remain the most common cause of childhood mortality. In 2012 the WHO revealed that around 1.5 million children worldwide died from vaccine-preventable diseases. In the same year WHO further reported about 22.6 million children under the age of one worldwide did not receive DiphtheriaPertussis-Tetanus Vaccine Three (DTP3) vaccine and more than 70% of these children lived in ten countries of the Democratic Republic of Congo, Ethiopia, India, Indonesia, Iraq, Nigeria, Pakistan, Philippines, Uganda and South Africa [4]. In fact, the highest rates of mortality in children under 5 years old continue to occur in sub-Saharan Africa, which accounted for half of child deaths worldwide in 2008 1 in 7 children in the region died before their fifth birthday. The disease kill about 470000 children in Ethiopia per year and it has 30 times more probability of death than a child found in Western Europe placing Ethiopia sixth in the world in terms of absolute number of under-5 deaths [5]. Results from the 2011 EDHS data show a remarkable decline in all levels of childhood mortality. Infant mortality has declined by 42% over the 15-year period preceding the survey from 101 deaths per 1,000 live births to 59 deaths per 1,000 live births. Furthermore, under-five mortality has declined by 47% over the same period from 166 deaths per 1,000 live births to 88 deaths per 1,000 live births. Still, this means that 1 in 12 Ethiopian children die before their fifth birthday [6]

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 [7]. Clients satisfaction is defined as having at least three dimensions. Which include structure, process and outcome. Client Satisfaction is a multidimensional construct involving interpersonal manner, quality of care, accessibility or convenience, finance of care, consistency, physical environment and availability [8]. Uptake of vaccination services is dependent not only on provision of these services but also on other different factors including knowledge and attitude of mothers, density of health workers [9].

1.2. Statement of the Problem

In Ethiopia, infectious and communicable diseases account for about 60–80% of the health problems. A substantial number of deaths of children under five years of age in the country is due to vaccine-preventable diseases. The < 5 age mortality stands at 123 per 1,000 with a plan to reduce to 54 per 1,000 up to the year 2015 to meet Millennium Development Goal-4 (MDG-4) and immunization coverage was one of the indicators to monitor the progress [10]. Pentavalent was introduced with objective of increasing pentavalent three coverage to 88% by the end of 2011[11]. Immunization service provision has shown gradual increase since 2004 reaching 86% administrative coverage of penta3 in 2010 and 2011. Despite this gain, there was decline in 2012 and 2013 to 83 and 82 respectively and with increasing once gain to 87% in 2014. According to EPI Coverage Survey , 2012 regions like Addis Ababa , tigray dire dawa and SNNP achieved penta 3 coverage 96.4%,88.3%,89.6% and 79.3% respectively[12]. According to 2014/15 woreda health office report the Gombora woreda Pentavalent 3 coverage was 87. 6% which was lower as compared to zonal achievements(95.6%). However the survey on maternal satisfaction and some contributing factors toward EPI was not known. The EPI at its inception aimed to increase the third dose of Diphtheria, Pertussis & Tetanus vaccine (DPT-3) coverage by 10% every year achieving 100% by the year 1990. In spite of the improvement in immunization coverage over the past many years achieving this goal become difficult to the present.

Maternal satisfaction with pediatric care is an indicator of provider quality that has been relatively unexplored in relation to childhood immunization. One prior study reported an association between maternal satisfactions with pediatric care and up-to-date immunization at 24 months independent of maternal age and education [13]. Research on parental health beliefs and attitudes often assumes that parents decline immunization or are simply less knowledgeable and persistent in the health care setting without also examining their access and timely utilization of well-child care [14]. Some studies found that Mothers' satisfaction with health care services in Africa is one of the most

important factors determining the utilization of EPI services [15, and 16]. 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 [16]. Another study conducted in Egypt also reported that maternal satisfaction about vaccination is crucial to completeness of the schedule but it doesn't depend mainly on maternal knowledge about vaccination but other factors such as staff attitude, waiting time and cost of the service [7]. long travel time to come the health institution, long waiting time to get service, poor reception and interpersonal communication from health staffs were identified as independent predictors of maternal/caretakers satisfaction by the study conducted in Jigjiga. For client satisfaction, clients are asked to assess not their own health status after receiving care but their satisfaction with the services delivered [17, 18]. A satisfied client is more likely to develop a deeper and long lasting relationship with their care provider, leading to improved compliance, continuity of care, and ultimately better health care outcomes [7].

Nevertheless maternal satisfaction has not been adequately studied in relation to vaccination; Assessing outcomes will contribute some valuable information for the effectiveness of different EPI interventions and as part of a monitoring system directed to improving quality of service delivery as well as detecting it's weakening.

CHAPTER TWO: Literature Review

Overview of satisfaction and national immunization status

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 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. Client satisfaction evaluations can address the reliability of services, or the assurance that services are provided in a consistent and dependable manner, the responsiveness of services or the willingness of providers to meet clients/customer needs, the courtesy of providers, and the security of services, including the security of records. 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 [19].

In Ethiopia a number of key activities were undertaken to improve immunization services delivery and to address immunization stagnation in coverage. These included the training and deployment of technical assistants to high risk zones; the nationwide integration of Reaching Every District (RED), woreda-based micro-planning; the training of EPI officers at higher-level and health extension workers at grassroots; and cold chain rehabilitation and expansion. The Ethiopian immunization implementation guideline has been revised in 2015. BCG and OPV0 vaccine is given at birth or at first clinical contact, DTP-HepB1-Hib1, OPV1, PCV1, Rota1 vaccine is given at 6week of age, DTP-HepB2-Hib2, OPV2, PCV2, Rota2 is given at10weeks of age, DTP-HepB3-Hb3, OPV3, PCV3 vaccine is given at 14 weeks of age and measles vaccine given at or soon after reaching 9 months of age [12].

Health Sector Development Program IV (HSDP-IV) goal of the ministry of health EPI strategy is to achieve 96% DPT-3 coverage in all regions [2]. In spite of the improvement in immunization coverage over the past many years achieving this goal in all regions become difficult to the present. A number of factors have been shown to influence clients' satisfaction with health care services including clients' socio-demographic characters, physical health status, clients' personal understanding and expectations from various health care services [20]. Assessing maternal satisfaction and associated factors may give important lesson to improve EPI service utilization.

2.1 Factors that influence maternal satisfaction

2.1.1 *Socio-demographic Factors*

Factors influencing Mothers satisfaction are related to the quality and quantity of services and their socio-demographic characteristics including age, gender, Occupation, Level of education, Marital status, Religion, have contribution to satisfy mothers . Study conducted in Egypt show that the 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 (University education), 8.1% for read & write and only 3.6% were illiterate mothers [7]. 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% and 22.2% were housewives, employees respectively. As respect number of visits to the MCH centers, 81.5% and 18.5% of mothers visited the center 1-4 times and ≥ 5 times in the last year, respectively. Regarding cause of visit; 20.2%, 50.6%, 29.2% visited for the immunization clinic, the antenatal clinic, and the child birth clinic respectively [21].but there was no significant association between maternal socio demographic characteristics and maternal satisfaction on immunization. similar 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 [22]. Education of mothers was identified as a major factor for increased immunization in Nigerian children in a rural area [23].

study conducted on Evaluation of the Quality of Expanded Program on Immunization Service Delivery in Primary Health Care Institutions of Jijjiga Zone Somali Region, Eastern Ethiopia revealed that The highest proportion of mothers /caretakers (32.7%) were within the age group of 20-25 years. Majority of the respondents (89.1%) were married. Regarding occupation of the interviewee house wife were predominant(73.2%).In order to assess the relative importance of each predictor, socio-demographic variables were analyzed if there is an association with satisfaction of the mothers/caretakers' on EPI services they received from the selected health institutions. age was found to be significant determinants of satisfaction of the mothers/caretakers' on EPI services they received from the selected health institutions and In the bivariate analysis educational status was associated with satisfaction but in multiple logistic regression it was confounded by variables when controlled [24].

2.1.2 *Knowledge Of parents towards childhood vaccination*

Knowledge of parents is one factor that influences immunization status of children. 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 [12].

Studies suggest that parents and health care providers are uncomfortable with multiple injections in single visits [25-26], even in areas with high coverage, it is important to know attitudes and behaviors toward immunizations in order to improve services and maintain high coverage rate [27]. Despite nearly 100% childhood vaccination rate in Saudi Arabia, often parents do not follow the schedule in a timely manner, and do not fully understand the value of immunization.

A study conducted in Egypt shows that inappropriate knowledge was reported by most of mothers (84.8%), compared to 14.9% for fair knowledge and only 0.3% for good knowledge. 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 [7]. 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; 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 [28]. study conducted in Sinana District, Southeast Ethiopia Concerning knowledge of mothers on vaccination and VPDs, Almost all,(98.0%) have replied that immunization prevents communicable diseases and (83.6%) of them knew VPDs. Out of the 518 who knew about when the child should complete the immunization, (98.3%) reported the completion of immunization (i.e. before a year). Overall more than two-third, (71.2%) of the study subjects were knowledgeable (have good knowledge and scored above the mean i.e. $4.95(\pm 1.5 \text{ SD})$); whereas (28.8%) were completely non-knowledgeable (poor knowledge) regarding immunization [29]. 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 and 39.5% had inadequate knowledge [30].

2.1.3 Process and access factors towards childhood vaccination

The general physical appearance of the health facility as well as the general environment of the premises also influences the overall Satisfaction of the client [31]. Good physical environment and efficient management were significant in women's positive assessment of the health facility and maternal and child care services [32 -33]. These included good building infrastructure with water

supply, electricity, cleanliness, adequate room space, seating arrangement and waiting areas, as found in India, Bangladesh and Nigeria [33-36]. In Bangladesh, mothers who rated the availability of services at the facility (a composite of waiting area, drinking water, clean toilet and waiting time) as 'good' were significantly more satisfied with care than those who rated the services as 'poor' [34]. Study conducted in Serbia show that the scale of environmental factors generally showed the lowest satisfaction ratings, with nearly one-half of all mothers dissatisfied with hygiene and the sanitary facilities within the health facility [37].

Study conducted in Bagbazar also shows that Factors like "inadequate Sitting provisions", "improper drinking water and toilet facilities were significantly increasing the probability of lesser satisfaction [38].

Studies on the reasons for low childhood immunization coverage from a variety of countries have identified such factors as inadequate immunization services, limited access to service, poor health staff attitude and practices, unreliability of services, false contraindications, and fears of side effects, conflicting priorities. Immunization process like greeting, vaccine education, waiting time, dose, manner of health care providers, distance of facility and transport are deterrents for maternal satisfaction [39-41]. 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 of clients were dissatisfied with duration to wait and fulfillment of health care facility, 30% were dissatisfied with facilities and equipment, and 20% were dissatisfied about efficiency to treat [39].

Some studies found that Consumers' satisfaction with health care services in Africa was one of the most important factors determining the utilization of services [15-16]. Determinants of perceptions of quality of services found in Tanzania Include; perceived time spent at the facility, availability of immunizations, availability of child health services and the staff strength of the health facilities [16]. Study show that the inconvenience of clinic hours dates of immunization clinics, and locations of clinics were reasons for maternal dissatisfaction [3]. Study done in Nigeria the inconvenience of clinic hours, dates of immunization clinics, and locations of clinics were reported by 75% of the parents [13]. 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 [23].

According to the study done in Egypt, (95.2%) Of mothers were satisfied with childhood immunization. The interval to visit the clinic was 81.5% and 18.5% of mothers visited the center 1-4 times and ≥ 5 times in the last year, respectively., 83.2% of mothers have no difficulty in accessibility .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 [7]. Regarding time spent in processes; 39.5% of cases spent 5-9 minutes, 33.3% spent <5 minutes and 27.2% spent >10 minutes, and the majority of mothers have waiting time less than 15 minutes(21). According to study conducted in Jigjiga discussion with the health workers about immunization, time to reach health facility, and Waiting time to get the service were found to be significant determinants of satisfaction of the mothers'/caretakers' on EPI services they received from the selected health institutions[24].

2.1.4 Quality Care Factors

Quality is a health service that is acceptable, accessible, efficient, effective, safe, cost savings and that's continuously evaluated and upgraded in order to satisfy clients. For client satisfaction, clients are asked to assess not their own health status after receiving care but their satisfaction with the services delivered.

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%) [42]. study conducted in Tanzania also 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 [16]. 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%, and satisfaction about information giving was 61% and satisfaction about cost was 50.5%. [7]. According to Jigjiga Regardless of good awareness on EPI service by the interviewed mothers/care takers among the selected health institutions, when asked their level of satisfaction towards reception of EPI service and their providers points of view, 96.0% of the mothers/care takers were satisfied with the reception of the health worker, of which 69.6% were satisfied due to the information given to them by the health worker, the way of greeting and concern of the clients problem by the health workers. Regarding clients satisfaction ,clients were assessed their level of satisfaction about

immunization service they got from these health institutions, 53.3%of them were satisfied. The main reason for satisfaction was short waiting time of the service[24].

2.2. Significance of the study

A satisfied mother is more likely to develop a deeper and long-lasting relationship with their care provider, leading to improved compliance, continuity of care, and ultimately better health care outcomes .however information related to mothers ‘satisfaction on child immunization was not adequately studied. This study will provide information on mothers’ satisfaction toward immunization and will try to fill the identified gap and helps the responsible bodies to identify the strength and weakness of the service and take corrective action for improving the service delivery system. In addition, the paper may be useful to other researchers as reference material while conducting further studies on similar problems.

Conceptual frame work

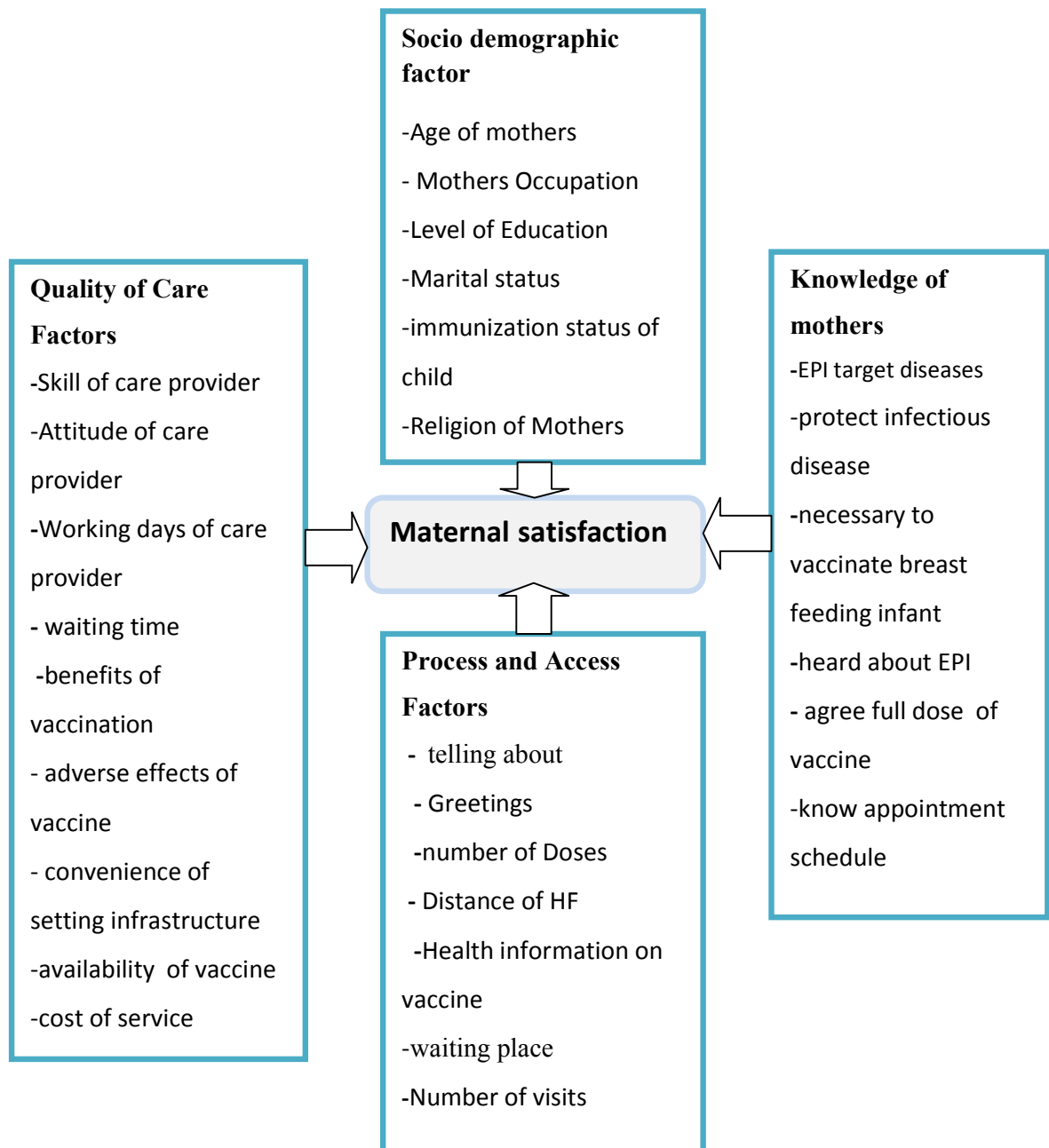


Figure 1:-conceptual frame work developed from different literature review

CHAPTER THREE: Objective of the study

3.1 General Objective

To assess maternal satisfaction towards childhood immunization service and associated factors among mothers attending health posts in Gombora woreda, Hadiya zone, SNNPR, Ethiopia.

3.2 Specific Objective

- *To determine level of maternal satisfaction towards childhood immunization service.*
- *To identify factors associated with mother's satisfaction towards childhood immunization service.*

CHAPTER FOUR: Methods and materials of study

4.1 Study Area and Study period

The study was conducted from March to Apr 2016 in Gombora Woreda, which is found in SNNPRs, Hadiya administrative zone and located 264km far away from Addis Ababa, 226km from the regional capital city Hawassa and 32km from zonal town Hosanna. It is one of the eleven woredas found in the zone. The study area has 24 kebeles (two semi urban and 22 rural kebeles). According to woreda population projection of 2008 (2015/16), estimated total number of population were 114630(Male 58461; Female 56169) and reproductive age group women of 26709(23.3%of total population) and 3657 estimated under one year children. It is bounded by Gibe woreda in the north, Yem special woreda in the west, Misha and Lemo woreda in the east and Soro woreda in the south. The woreda has 30 health institutions (24 health posts and 6 health centers) and no district hospital. One health centre is linked to 4 health posts and together they form the primary health care unit. A health post is staffed by two HEWs who are technically and administratively accountable to health centres. EPI service is provided by all the health posts. According to 2014/15woreda health office report the vaccination coverage was 87.6%.

4.2 Study Design

A Facility based Cross sectional study was employed . quantitative and qualitative methods of data collection were used

4.3 population

4.3.1 Source Population

- All Mothers in Gombora woreda who have under one year child and attend childhood immunization services.
- EPI service providers and Mothers for in-depth interview

4.3.2 Study Population

- Mothers who attend health post for the purpose of immunization of their children during data collection period in Gombora woreda.

For in-depth interview-key informants-selected HEWs and Mothers

4.3.3 Inclusion Criteria and Exclusion Criteria

Inclusion Criteria

- Mothers with child and visited health post at the time of data collection for immunization of child were included in the Study.

Exclusion Criteria

- Mothers who are unable to respond

4.4 Sample size and sampling techniques

4.4.1 Sample size

The sample size is determined by using single population proportionate formula.

$$n = \frac{(Z_{\alpha/2})^2 P (1-P)}{d^2} = \frac{(1.96)^2 \times (1-0.533) \times 0.533}{(0.05)^2} = 383$$

- P= 0.533, study conducted in Jigjiga Zone Somali Region, Eastern Ethiopia 2015 [24]
- d = Margin of error 5% (0.05)
- $Z_{\alpha/2}$ = Critical value at 95% confidence interval of certainty (1.96)
- since the source population is, less than 10,000 so corrected sample size 347, $n_f = n_o / (1 + n_o / N)$ where n_f is corrected sample size $n_o=383$ and $N=3657$ And by adding 10% of non-response rate total sample size was reached 382

for in-depth interview

- five HEWs and five Mothers, who were not involved in quantitative study were selected. Saturation of information determined the size of key informants.

4.4.2 Sampling Procedure

There are six health centers and 24 health posts in the woreda. Each of health centers is linked with four health post and totally there are 30 health facilities. The health facility serve for 24 kebele (22rural kebele and 2semi urban kebele). From each health centers, 2 health posts were selected by simple random sampling(drawn by lottery methods), since the eligible groups for vaccination were planned under health posts and totally 12 health posts were included for this survey. the total sample required for the study were proportionally allocated based on the number of clients served per month

in the selected health posts. Consecutive sampling technique was used to include studied Respondents, until the required sample size was reached.

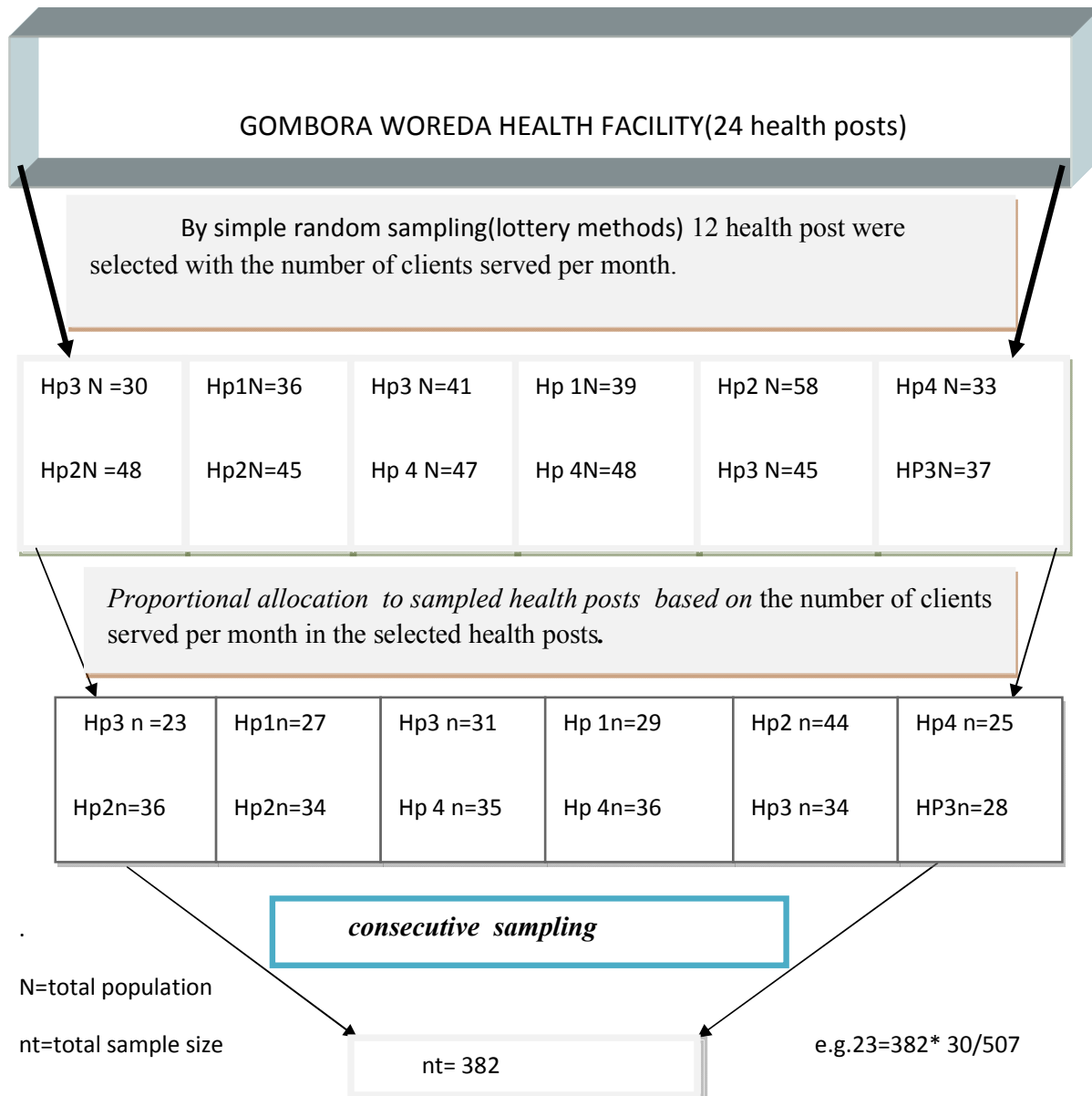


Figure 2:-Ischemic presentation of sampling procedure

✚ for qualitative study-Purposive convenient sampling approach was employed to select participants.

4.5 Methods of Data Collection procedure

Exit interview with structured questionnaires which were adapted from different literatures [7, 20,24] and modified according to the local context by the investigator, were used to collect the data. The principal investigator trained data collectors and supervisors for one day. Data were collected by 8 diploma holder (clinical nurses) trained data collectors whose mother tongue is Hadiyisa. 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 HEWs and Mothers. Selected Mothers and HEWs were interviewed using a semi structured questionnaire.

4.6 Study variables

4.5.1 .Dependent variable:

Maternal satisfaction for child immunization services provided.

4.5.2 Independent variables:

- Maternal Socio-demographic factors(mother's age, immunization status of child, occupational status , marital status, educational status, religion of mothers)
- Knowledge of Mothers on immunization
- Access and Process related factors(health information, greetings, presence of waiting area, schedule, number of doses, waiting time, time taken to health facility, cleanliness of waiting area)
- Quality related factors(working hours, attitude of care provider, skill of care provider, adverse effects of vaccine, benefits of vaccination)

4.7 operational definitions

Accessible; those who lived less than 5Km or it takes less than 30 min to reach HF and waiting time<30min(43)

Cleanliness waiting area: no visible indiscriminately disposed waste in the compound, floor, wall, and ceilings are free from dust.

Clients overall satisfaction level: was classified into satisfaction score above cut point and dissatisfaction below cut of point calculated using the demarcation threshold formula: $\{(total\ highest\ score - total\ lowest\ score) / 2\} + Total\ lowest\ score$ [42].

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

Full dose: One dose BCG and measles, three dose DPT-HepB-Hib and polio, PCV10 and Two dose Rota virus.

Fully immunized children- are those who receive all the necessary doses of vaccines (OPV, BCG, DPT-HepB-Hib, and measles) before one year of age.

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

Good Knowledgeable mothers: Those mothers who answer above the Mean score to specific knowledge question 'about childhood immunization.

Not Up-to-date: Child had some, but not all, of the immunizations based on schedule that he/she is at eligible his/her age .

Saturation point: The repeat ion of same replies for the same question but with different respondent

Up-to-date immunization: child is on immunization based on immunization schedule that he/she is eligible.

Waiting Time: is the time clients had to wait before receiving their services. Acceptable waiting time: <30 min(43)

4.8 data processing and analysis:

Data was thoroughly coded, entered in to epidata and cleaned carefully and were analyzed by using SPSS 20 statistical software. Different frequency tables, graphs and descriptive summaries were used to describe the study variables. Bivariate logistic regression analysis was used to see significance of association between dependent and independent variables. All explanatory variables which had association in bivariate analysis with p value less than 0.25 were entered in to multivariable logistic regression model in order to assess the independent predictors of satisfaction. P-value < 0.05 was considered as statistical significance in this study.

In case of qualitative: before data collection, interview guide or topic guide was prepared which contains space for the participants profiles, date of data collection, place of data collection, their work experience, training taken, in-depth interview question what hinders immunization services, how do you see clients satisfaction on EPI services that you provided, perception of mothers on childhood immunization, what makes you to be satisfied when you are vaccinating your child, how do you see accessibility of service and the manner of care provider.

During data collection, Prepare notes of interviews and audio record were made. Immediately after session type the notes, listen to the audio tape then the data were transcribed manually from the

audio taped records and the notes taken. Results were analyzed manually by summarizing the ideas forwarded by the participants.

4.9 Data Quality Assurance:

The questionnaires were translated first English to Hadiyisa (the local language) to make data collection process simple and back translated to English language by other translator(language experts) to check its consistency. The local language questionnaires were used to collect data. The questionnaires were pre-tested on 5%(19) mothers having child aged less than one year in health posts out of study woreda on similar settings and necessary modification was made based on the nature of gaps identified in the questionnaire. The age range less than 1 year was selected, because vaccination is recommended in this age group and in order to minimize respondents recall bias. Everyone in the sample was assured for confidentiality, asked separately and away from health service providers and motivated to give true answers. Supervision was made by the principal investigator and Two supervisors[Bsc in nurse] by observing how data collectors were conducting the interview of data collection. At the end of each day data collectors submit all completed questionnaire and each completed questionnaires were checked by the principal investigator for completeness and consistencies. In case of qualitative, all were tape recorded in addition to taking notes. the data collected from in-depth interview were transcribed to the word document and were translated to English for further processing. Trustworthiness of qualitative study was enhanced by credibility (by prolonged contact of data collectors), conformability.

4.10 Ethical Considerations:

Prior to data collection appropriate ethical clearance was obtained from the ethical review board of the Jimma University. An official letter was written from school of Health science to administrative body of zone. Formal letter of permission was produced from administrative bodies of the zone to the Woreda health office and to the health centers. Finally verbal consent was requested from every study participant included in the study during data collection time after explaining the objectives of the study.

4.11 Dissemination of the finding:

The findings of this study will be presented to the Jimma University scientific community and submitted to the department of epidemiology and college of health sciences. The findings will also be distributed to Hadiya zone health department, Gombora woreda health office, Gombora woreda Women and child affairs and stake holders who are interested in child health related activities in Hadiya Zone. Publications in peer reviewed, national or international journals will also be considered.

CHAPTER FIVE: Results

The data were extracted from 382 mothers that made the response rate 100%, of which one hundred and sixty nine (44.2%) of mothers were in the age range 20-25 years. The mean age of the mothers were 26 years (SD±3.94). the majority of respondents were protestant (84.6%) and 379 (99.2%) were currently living with husbands. concerning the mother's education; 54.2% were primary educated, 21.7% secondary educated, 13.9% diploma and above (Table 1).

Table 1: Socio-demographic characteristics of mothers in Gombora Woreda, South Ethiopia, March 2016, (n=382).

Variables	Category	Number	Percent
Age group of mothers	20-25	169	44.2
	26-30	174	45.5
	>30	39	10.2
	Total	382	100
	Mean±SD age	26.4±3.94	
Marital status of mothers	Married	379	99.2
	Divorced	3	0.8
	Total	382	100
Religion of mothers	Protestant	323	84.6
	Others**	59	15.4
	Total	382	100
Child immunization status	Up to date	111	29.1
	Not up to dated	123	32.2
	Fully	148	38.7
	Total	382	100
Occupation of mothers	Housewife	271	70.9
	Merchant	68	17.8
	Govt. Employee	43	11.3
	Total	382	100
Educational status of mothers	No formal	39	10.2
	Primary level	207	54.2
	2 ^{ry} level	83	21.7
	Diploma & above	53	13.9
	Total	382	100

religion of mothers others**=(catholic, orthodox, Muslim)

More than half mothers (60.9%) heard about EPI target diseases and 338 (88.5%) mothers answered vaccine protect infectious diseases. All the mothers 382 (100%) believe that, it is necessary to vaccinate breast feeding child,354(92.7%) mothers agree to vaccinate their baby full dose. Overall more than two-third, (73.5%) of the study subjects had good knowledge on immunization (have good knowledge and scored above the mean i.e. 5.3(±1.4 SD) (Table2).

Table 2 Maternal Knowledge on immunization attending health posts, in Gombora Woreda, South Ethiopia, March 2016,(n=382).

Knowledge of mothers on immunization	Respondents category			
	Yes		No	
	No	%	No	%
Are you heard about EPI target disease?	233	60.9	149	39.0
Do you know some of EPI target disease?	232	60.7	150	39.2
Is it possible to protect infectious disease by vaccine?	338	88.5	44	11.5
Is it necessary to vaccinate breast feeding child?	382	100	0	0
Do you agree to immunize your child full dose?	354	92.7	28	7.3
Do you know immunization appointment schedule?	267	69.9	115	30.1
Do you keep an appointment schedule	230	60.2	152	39.8
Knowledge score	Good knowledge		poor knowledge	
	281	73.5	101	26.5

About 83 (21.7%) were not given greetings, regarding of information giving, 286 (74.9%) of mothers were given information about vaccine and 278(72.8)% of mothers were told about types of vaccine that the child have taken. Majority of mothers (76.4%) were told about the dose of current vaccine administered and 297(77.7%) of mothers were told about an appointment for next vaccination(Table3).

Table 3 Process related variables in immunization activities in Gombora Woreda, South Ethiopia, March 2016,(n=382).

Process factors	Respondents category			
	Yes		No	
	No	%	No	%
Did the health team greet you?	299	78.3	83	21.7
Did they ask the service that you want?	332	86.9	50	13.1
Have you given information about vaccine?	286	74.9	96	25.1
Was there appointment for today?	250	65.4	132	34.6
Did the care provider tell you type of vaccine your child takes?	278	72.8	104	27.2
Did the care provider tell you the number of doses of the vaccine your child taken?	292	76.4	90	23.6
Did the care provider tell you an appointment for the next	297	77.7	85	22.3

No=number

Study subjects were asked accessibility to the health posts, more than half (56.3%) of mothers reached health post in less than 15 min, 78(17.8%) reached within 30 to 60 min. As respect of number of visits to the health post, 80.6% and 19.4% of mothers visited the post 1-4 times and ≥ 5 times in the last year respectively. About 244(63.9%) mothers wait for less than 15 min. Regarding time spent in vaccination, 336(88.0%) of mothers spent <5 minutes (Table4).

Table 4: Accessibility related variables of service in Gombora Woreda, South Ethiopia, March 2016 (n=382).

Variables	Category	Number	Percent
Distance to health facility	Less than 15 min.	215	56.3
	15-29 min.	78	20.4
	30-60 min.	68	17.8
	>60 min	21	5.5
	Total	382	100
Number of visit to health facility	1-4 times	308	80.6
	≥ 5 times	74	19.4
	Total	382	100
Reason of visit	For immunization	292	76.4
	Immu ⁿ \$Other purpose	90	23.4
	Total	382	100
Is there waiting place	Yes	251	65.7
	No	131	34.3
	Total	382	100
How long you wait(minute)	Less than 15 min.	244	63.9
	15-29 min.	97	25.4
	30-60 min.	41	10.7
	Total	382	100
Time spent for vaccination	Less than 5 min.	336	88.0
	Greater than 5 min	46	12.0
	Total	382	100

Minimum score of respondents was 31 and maximum was 47. Based on cut point 39, respondents are thus divided into two categories- “satisfied” above cut point and “dissatisfied” with below cut point. mothers were rated; waiting time(84.3%),care provider attitude (89.8%),working days of care provider 74.9%), Care provider skill (67.8%) as good and education on immunization(56%), sitting provisions and sitting arrangement(51.0%), Care provider clearing up about adverse effect of vaccination(58.9%), Cleanness of waiting area(51.0%), (%) scored as fair(Table5).

Table 5: Mothers' rating score about aspects of care provided in Gombora Woreda, South Ethiopia, March 2016,(n=382)

Aspects of care check list	Poor		Fair		Good		V. good		Excellent	
	No	%	No	%	No	%	No	%	No	%
Health Education on vaccines	10	2.6	214	56	131	34.3	27	7.1	0	0
Waiting time	3	0.8	45	11.8	322	84.3	12	3.1	0	0
Sitting provisions to clients	10	2.6	195	51	176	46.1	1	0.3	0	0
Care provider attitude towards clients	0	0	12	3.1	343	89.8	25	6.5	2	0.5
Availability of vaccination	2	0.5	196	51.3	160	41.9	7	1.8	17	4.5
Cos of service	0	0	0	0	0	0	0	0	382	100
Working days of care provider	0	0	68	17.8	286	74.9	28	7.3	0	0
Care provider explaining about adverse effect of vaccination	10	2.6	225	58.9	139	36.4	2	0.5	6	1.6
Cleanness of waiting area	10	2.6	195	51.0	168	44.0	6	1.6	3	0.8
Registration and documentation	1	0.3	58	15.2	254	66.5	63	16.5	6	1.6
Buildings of health facility	20	5.2	162	42.4	182	47.6	12	3.1	6	1.6
Care provider skill	1	0.3	91	23.8	257	67.8	28	7.3	5	1.3
Adverse effect of vaccination	15	3.9	251	65.7	114	29.8	2	0.5	0	0
Benefit of vaccination	0	0	103	27.0	134	35.1	124	32.5	21	5.5
Overall satisfaction	66.2% calculated by demarcation threshold formula [(high score-low score)/2 + low score]									

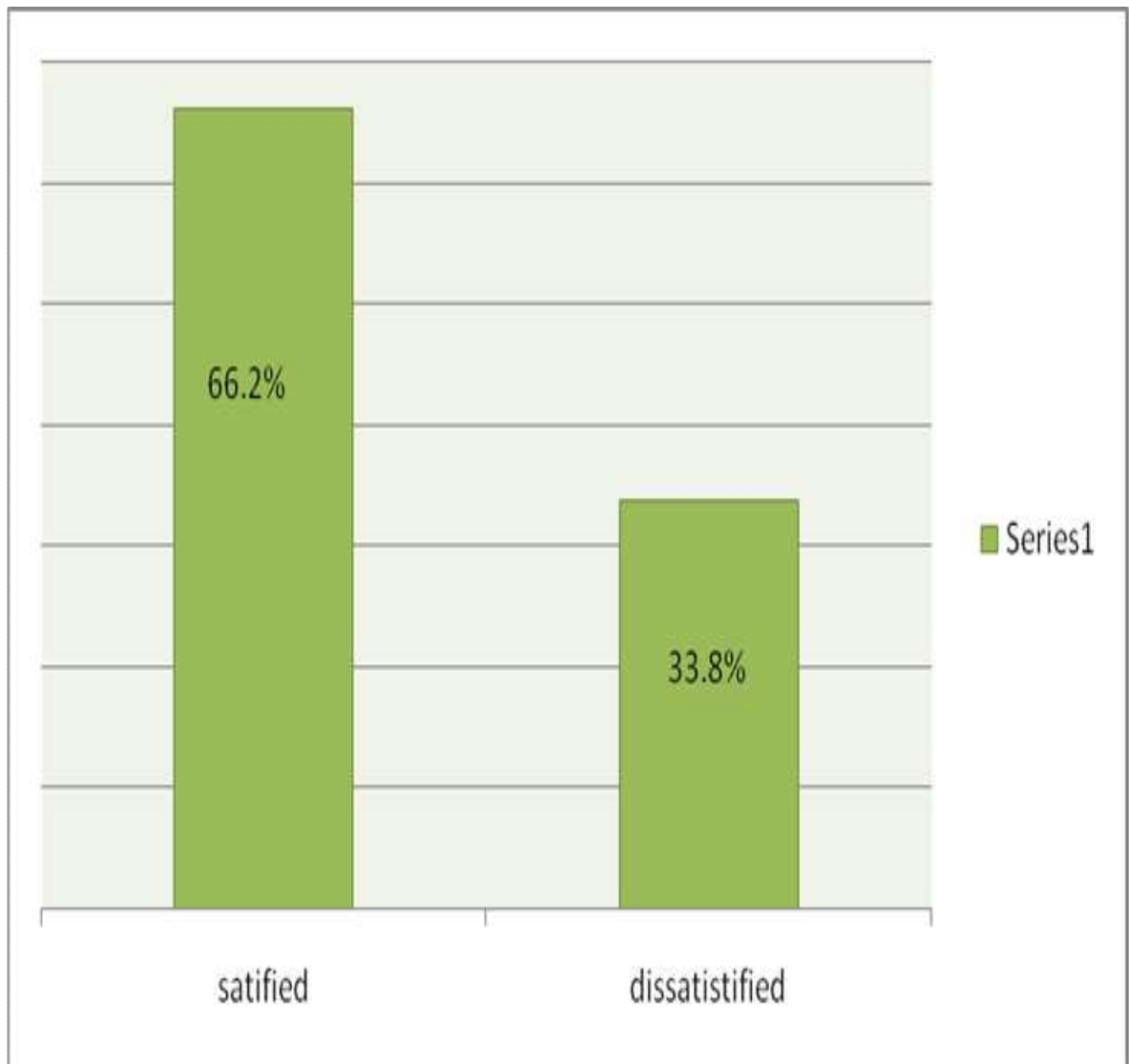


Figure 3: level of maternal satisfaction towards child hood immunization in Gombora Woreda, South Ethiopia, March, 2016.

Factors affecting maternal satisfaction towards childhood immunization.

The results revealed that socio demographic characteristics of mothers Age, occupational status, child immunization status were candidates for multivariable analysis. (Table6).

Table 6: bivariate analysis to show socio demography and knowledge of mothers associated with maternal satisfaction in Gombora Woreda, South Ethiopia, March 2016,(n=382).

Variables	Category	Satisfied	Unsatisfied	COR(95%CI)	p-value
		No (%)	No(%)		
Age group of mothers	20-25	97(18.8)	72(25.4)	0.404(0.18-0.9)*	0.56
	26-30	126(12.8)	48(33.0)	.79(0.35-1.78)	0.027
	>30	30(2.4)	9(7.9)	1.000	1.00
Religion of mothers	Protestant	217(56.8)	106(27.7)	1.00	1.00
	Others	36(9.4)	23(6.0)	.76(0.43 1.4)	0.36
Child immunization status	Up to date	110(28.8)	38(9.9)	1.00	1.00
	Not up to date	68(17.5)	55(14.4)	0.43(0.3-1.01)*	0.01
	Fully	75(19.6)	36(9.4)	0.7(0.8-2.4)	0.23
Occupation of mothers	Housewife	170(44.5)	101(26.4)	0.59(0.3-1.2)*	.141
	Government Employee	51(13.4)	17(4.5)	1.0(0.4-2.5)	0.95
	Merchant	32(8.4)	11(2.9)	1.00	1.00
Educational status of mothers	No formal	23(6.0)	16(4.2)	1.00	1.00
	Primary level	138(36.1)	69(18.1)	1.4(0.37-2.03)	0.75
	2 ^{ry} level	59(15.4)	24(6.3)	1.7(0.65-2.23)	0.55
	Diploma & above	33(8.6)	20(5.2)	1.15(0.71-3.0.6)	0.285
Knowledge of mothers on immunization	Good knowledge	197(51.6)	84(22.0)	1.89(1.18-3.01)*	0.018
	poor knowledge	56(14.7)	45(11.8)	1.00	1.00

* Significant, COR=crud odd ratio, CI=confidence interval

The service process activities; Greeting, asking, information giving, appointments, telling type of administered vaccine, telling the number of doses of vaccine were candidates for multivariable analysis.(at $p < 0.25$) (Table7).

Table 7: bivariate analysis shows association between process factors with maternal satisfaction in Gombora Woreda, South Ethiopia, March 2016(n=382)

Variables	Category	Satisfied	Unsatisfied	COR(95%CI)	p-value
		No (%)	No (%)		
Did the health team greet you	Yes	232(60.7)	67(17.5)	10.2(5.8-17.9)*	0.001
	No	21(5.5)	62(16.3)	1.00	1.00
Did they ask the service that you want	Yes	225(58.9)	107(28)	1.6(0.9-3.0)*	0.103
	No	28(7.3)	22(5.8)	1.00	1.00
Have you given information about vaccine	Yes	231(60.5)	55(14.4)	14.1(8.1-24.7)*	0.001
	No	22(5.8)	74(19.4)	1.00	1.00
Was there appointment for today	Yes	180(47.1)	70(18.3)	2.1(1.3-3.2)*	0.01
	No	73(19.1)	59(15.4)	1.00	1.00
Did the care provider tell you type of vaccine your child take	Yes	219(57.3)	59(15.4)	7.6(4.6-12.6)*	0.001
	No	34(8.9)	70(18.3)	1.00	1.00
Did the care provider tell you the number of doses of the vaccine your child taken	Yes	221(57.9)	71(18.6)	5.6(3.4-9.3)*	0.012
	No	32(8.4)	58(15.2)	1.00	1.00

*Significant, COR=crud odd ratio, CI=confidence interval

Concerning accessibility of factors, the number of visits to health posts, reason of visit, waiting place, waiting time, time spent for vaccination were predictors of maternal satisfaction towards childhood immunization in bivariate analysis(at $p<0.25$).

Table 8: bivariate analysis shows association between accessibility factors with maternal satisfaction in Gombora Woreda, South Ethiopia, March 2016(n=382)

Variables	Category	Satisfied	Unsatisfied	COR(95%CI)	p-value
		No (%)	No (%)		
Distance to health facility	<15 min.	151(39.5)	64(16.8)	1.7(0.7-4.4)	0.26
	15-29 min.	51(13.4)	27(7.1)	1.4(0.5-3.7)	0.48
	30-60 min.	39(10.2)	29(7.6)	1.01(0.3-2.7)	0.98
	>60 min	12(3.1)	9(2.4)	1.00	1.00
Number of visit to health post	1-4 times	190(49.7)	118(30.9)	0.28(0.14-0.5)*	0.001
	≥ 5 times	63(16.5)	11(2.9)	1.00	1.00
Reason of visit	For immu ⁿ	203(53.1)	89(23.3)	1.8(1.1-2.9)*	0.015
	Immu ⁿ \$Other purpose	50(13.1)	40(10.5)	1.00	1.00
Is there waiting place	Yes	178(46.6)	73(19.1)	1.8(1.2-2.8)*	0,008
	No	75(19.6)	56(14.7)	1.00	1.00
How long you wait(minute)	< 15 min.	201(52.6)	43(11.3)	7.3(3.6-14.8)*	0.001
	15-29 min.	36(9.4)	61(16.0)	0.9(0.4-1.9)	0.83
	30-60 min.	16(4.2)	25(6.5)	1.00	1.00
Time spent for vaccination	< 5 min.	227(59.4)	109(28.5)	1.6(0.3-1.2)*	0.14
	≥ 5 min.	26(6.8)	20(5.2)	1.00	1.00

*Significant, COR=crud odd ratio, CI=confidence interval

The results revealed that socio demographic characteristics of mothers and knowledge of mothers on immunization were not significantly associated with maternal satisfaction towards child hood immunization in the multivariable analysis($p>0.05$).

Maternal satisfaction towards child hood immunization has statistical significant association with health team greet mothers during immunization, mother who were greeted by health team during immunization were 5.4 times more likely satisfied than mothers who were not greeted AOR=5.4 (2.6-11.2). Information giving on immunization were statistical significant with maternal satisfaction towards child hood immunization, mothers who were given health information on immunization were 7.4 times more likely satisfied than mothers who were not given information on immunization AOR=7.4(3.8-14.6).Telling about the type of current vaccine administered for mothers were also statistically significant with maternal satisfaction towards child hood immunization AOR=3.5(1.7-7.02).

From accessibility factors, number of visit and waiting time was statistically associated with maternal satisfaction AOR =0.25 (0.09-0.78) and AOR=6.2(2.3-16.6) respectively. mothers who visited health facility 1-4 times in last year were 0.25 times less likely satisfied than mothers who visited ≥ 5 times in last year and mothers who waited for less than 15 minutes in health facility were 6.2 times more likely satisfied than mothers who waited for 30-60 minutes respectively ($p<0.05$)(table 9)

“Among interviewed mothers, who were not satisfied in the service, reasons they mentioned were; lack of chairs/tables for sitting, un availability of vaccine on appointment days ,vaccination of multiple injection at single visits and cleanness of waiting place”.

In the observed health posts, the care providers had vaccine carriers, adequate icepacks, foam pads, vaccination monitoring chart, tally sheet, family folder, tickler box, registration book, reporting format, safety box, mixing syringe, AD syringe, immunization guide line and vaccines. Although, the health providers reported, they had no cold box , refrigerator and source of power supply in each health posts. however one cold box and refrigerator is given for four health posts commonly in one health center.

Table 9: final model of multivariable analysis to show Factors affecting maternal satisfaction towards childhood immunization in Gombora Woreda, South Ethiopia, March 2016,(n=382).

Variables	Category	Satisfied	dissatisfied	AOR((95%CI)	P- value
		No (%)	No (%)		
	Housewife	170(44.5)	101 (26.4)	.257 (.064-1.033)	.058

Occupation of mothers	Government Employee	51(13.4)	17(4.5)	0.532 (0.134-2.114)	0.370
	Merchant	32(8.4)	11(2.9)	1.00	1.00
Knowledge of mothers on immunization	Knowledgeable	197(51.6)	84(22.0)	2.06 (0.95-3.97)	0.059
	Not knowledgeable	56(14.7)	45(11.8)	1.00	1.00
Did the health team greet you	Yes	232(60.7)	67(17.5)	5.4(2.6-11.2)*	0.01
	No	21(5.5)	62(16.3)	1.00	1.00
Have you given information about vaccine	Yes	231(60.5)	55(14.4)	7.4(3.8-14.6)*	0.01
	No	22(5.8)	74(19.4)	1.00	1.00
Did the care provider tell you type of vaccine your child take	Yes	219(57.3)	59(15.4)	3.5(1.7-7.02)*	0.01
	No	34(8.9)	70(18.3)	1.00	1.00
Did the care provider tell you the dose of the vaccine your child taken	Yes	221(57.9)	71(18.6)	2.7(1.3-5.3)	0.062
	No	32(8.4)	58(15.2)	1.00	1.00
Is there waiting place	Yes	178(46.6)	73(19.1)	1.95(0.98-2.8)	0.052
	No	75(19.6)	56(14.7)	1.00	1.00
Number of visit to health facility	1-4 times	190(49.7)	118(30.9)	0.25(0.09-0.78)*	0.015
	≥ 5 times	63(16.5)	11(2.9)	1.00	1.00
How long you wait (minute)	< 15 min.	201(52.6)	43(11.3)	6.2(2.3-16.6)*	0.001
	15-29 min.	36(9.4)	61(16.0)	0.64(0.21-1.8)	0.42
	30-60 min.	16(4.2)	25(6.5)	1.00	1.00
Time spent for vaccination	< 5 min.	227(59.4)	109(28.5)	0.34(0.11-1.13)	0.063
	≥ 5 min.	26(6.8)	20(5.2)	1.00	1.00

*Significant, AOR=adjusted odd ratio, CI=confidence interval

CHAPTER SIX: Discussion

The current study attempted to assess maternal satisfaction level towards childhood immunization and the important predictors that could contribute to improve service utilization of childhood immunization. The level of maternal satisfaction observed in this study was higher than the study done in Jigjiga (66.2% vs 53.3%) and the observed differences might be explained by the fact that the study populations in Jigjiga were more of pastoralist and this may be hard to reach area to provide service[24]. When compared with studies done in Egypt (66.2% vs 95.2%), Nigeria (66.2% vs 95.9%), Beijing (66.2% vs 75.5%), and Bangladesh (66.2% vs 97.0%), the present finding was low and the differences might be due to the differences in the setup of the vaccination services in the case of Egypt (7), better care for immunization and set up in case of Nigeria (23), and better reception and information delivery system in Bangladesh (32) were cited as some of the important factors.

The results showed that 56.2% of mothers evaluated childhood immunization services as good compared to 34% of mothers who evaluated it as fair, while 1.5% evaluated it as poor. This implies that maternal satisfaction components were; waiting time (83.8%), care provider attitude (89.3%). Working hours of care provider (74.4%), skill of care provider (65.9%) and service is free of charge which were rated as good. *“...I'm satisfied with service (waiting time, working days of care providers, by family folder, child immunization cards, getting health information on vaccine, my child being immunized without any fee, telling about types of vaccines that it protects from communicable diseases and by care providers politeness”*. 28 years old Mother. Some cause of dissatisfaction were, discussion about immunization and child health status with clients (55.0%), provision of setting place (51.0%), cleanness of waiting place (51.0%), availability of vaccine which were rated as fair in the current study. Similarly there was similar finding in qualitative. *“... many customers were complained about waiting place, chairs and setting infrastructures, as well as no adequate room and unavailability of vaccine on appointment days because of lack of transportation and stock out of vaccine in the health center, so that We asked concerned bodies for this problems”* 32 years old HEW.

Distribution of mothers rating score about aspects of care in the MCH in Zagazig Egypt showed that attitude of care provider (69.8%), cleanness of waiting area (77.9%), working hour of care provider (79.6%) scored as good and from providers' point of view, cheap service and proper care were the commonest causes of satisfaction respectively [21]. Cause of satisfaction in Nigeria were, vaccine availability, cleanliness of waiting place and cause dissatisfaction were inconvenience of

clinic hours, date of immunization, location of clinic was 75%[23]. In India cause of satisfaction were availability of vaccine, interpersonal quality, professional competency and cause of dissatisfaction were skill of health workers, waiting time, fulfillment of health facility and equipment, efficiency to vaccination. According to UNICEF most cause of dissatisfaction were absence of health workers, poor staff attitude, distance, lack of vaccine, long waiting time.

In this study process factors; greeting of mothers were significantly associated with maternal satisfaction towards childhood immunization, 232[60.7%] of mothers/caretakers were satisfied with greetings by the care provider. Mothers who were greeted by health professional were more likely satisfied than who were not greeted. Similarly this finding is comply with study conducted in Jigjiga and Zagazig City, Sharkia Governorate, Egypt. According to Jigjiga “on EPI service by the interviewed mothers/care takers among the selected health institutions, when asked their level of satisfaction towards reception of EPI service and their providers points of view”, 69.6% were satisfied with greeting by the health workers. The most powerful predictor for client satisfaction with government health institution in Egypt was the provider’s behavior towards the clients, particularly greeting and politeness[24]. This might be due to when mothers were greeted by health team they got confidence, respect and welcoming .so that mothers become satisfied to the service given for immunization.

Information giving on immunization, were significantly associated with maternal satisfaction towards childhood immunization, mothers who got health Information on immunization were more likely satisfied than who were not given information on immunization. 231[60.5%] of mothers/caretakers were satisfied with health information giving about immunization by the care provider. This finding comply with study conducted in Jigjiga and Kansas city. According to Jigjiga Regardless of good awareness on EPI service by the interviewed mothers/care takers among the selected health institutions, when asked their level of satisfaction towards reception of EPI service, 69.6% mothers/care were satisfied due to the information given to them by the health worker. In a study performed in Kansas City on Parental satisfaction with vaccination services, a lack of information from the vaccine providers was identified as the major reason for parental dissatisfaction[45]. This might be due to when mothers are informed about immunization mothers got knowledge, awareness, and attention to vaccinate their child and when they informed it increase their interaction with provider so that they become satisfied.

Telling about the type of vaccines were significantly associated with maternal satisfaction towards childhood immunization, mothers who were told about type of vaccine were more likely satisfied than mothers who were not told about vaccine. 219[57.3%] of mothers/caretakers were satisfied with

telling about the type of vaccine by the care provider. this might be due to with telling the type of vaccination on immunization one's expectation may be increased and they understand the importance of vaccines that can prevent EPI target diseases and then will get attention to immunize their child which may explain the more satisfaction among mothers who were told about type of vaccine .

As regard of accessibility to the centers, more than half (56.3%)of mothers reached health facility in less than 15 min, 78(20.4%) reached within 30 to 60min. As respect of number of visits to the health facility, 80.6% and 19.4% of mothers visited the health facility 1-4 times and ≥ 5 times in the last year respectively. number of visit and waiting time was statistically associated with maternal satisfaction. mothers who visited health facility 1-4 times in last year were less likely satisfied than mothers who visited ≥ 5 times in last year and mothers who waited for less than 15 minutes in health facility were more likely satisfied than mothers who waited for 30-60 minutes. this study comply study conducted in Egypt(7). according to study conducted in Egypt The interval to visit the clinic was 81.5% and 18.5% of mothers visited the center 1-4 times and ≥ 5 times in the last year, respectively .83.2% of mothers have no difficulty in accessibility. this finding was also in agreement study conducted in Egypt with Mother's Satisfaction with the Quality Care Of Maternal & Child Health Services At Maternal and Child Health Centers in Zagazig City, Sharkia Governorate, Mothers satisfaction was significantly positive among mothers with long term visits than among those with short time visits. waiting time is significant predict of mothers intent to return for additional health facility care and the majority of mothers have waiting time less than 15 minutes [21]. According to study conducted in Jigjiga Waiting time to get the service were found to be significant determinants of satisfaction of the mothers'/caretakers' on EPI services they received from the selected health institutions and The main reason for mothers/care takers satisfaction was waiting time for the service [24]. Another study done in Bangladesh showed that the most powerful predictor for client satisfaction was provider behavior, especially his respect, politeness and reduction of the waiting time[34]. This might be due to the customers expectation is the health institution to provide services in short time .

Limitation of the study:

- This study was self-report of socio-demographic characteristics and maternal perception of the childhood immunization service. Self-report has a tendency to introduce social desirability bias.
- Providers might also show the best behavior responses during client-provider interaction and perhaps users might also show courtesy bias during the exit interview.
- respondents who visited the health facility during the later hours of the day would be less satisfied as compared to those visiting earlier
- 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.

CHAPTER SEVEN: Conclusion and Recommendation

7.1 Conclusion

Quality is rapidly becoming a global issue and of concern to both the providers and the users of health care services. Also, the issue of client satisfaction and dissatisfaction has become a topic of increasing importance in health care.

According to this study, 66.2% of mothers were satisfied with childhood immunization services in health post, compared to 33.8% who were dissatisfied with them. The result showed that most of the clients were satisfied with waiting time, care provider attitude, working days of care provider, child registration and documentation, care provider skill and dissatisfied with provision of sitting infrastructures, availability of vaccine, care provider clearing up about adverse effect of vaccination and waiting area. In this study knowledge and socio-demographic characteristics of mothers were not significantly associated with maternal satisfaction. Greeting, waiting time, care provider giving health information on immunization, telling about types of vaccines and number of visits to health facility were the final predictors of maternal satisfaction in this study. The finding of qualitative study supports findings of quantitative study.

7.2 Recommendations

Based on the study findings the following recommendations are forwarded.

- ✚ Improving the waiting place with good sitting infrastructure and availability of vaccine should be considered by zonal health department, woreda health office and health centers management to improve the level of clients' satisfaction with services.
- ✚ Health worker should provide health education and awareness among the mothers through encouraging maternal active participation at every visit to meet the objective of the health facility goal by providing quality health services.
- ✚ Health worker should improve on the service process activities; greeting, reduce waiting time, give health information on importance, type of vaccines.
- ✚ Further studies that mainly address all areas of associated factors (quality of services in all dimensions) that may significantly affect satisfaction are needed.

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ANNEXES

Information sheet

Greeting: Good morning /good afternoon MAM

My name is _____ address _____

I am working as a data collector in study conducted by Daniel Erchafo who is a postgraduate student at Jimma University, College of health science. the objective of this study is to assess maternal satisfaction toward childhood immunization in Gombora woreda health post. The reason for why the researcher focused on this study 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 you provide is very essential to improve the service delivery. it was only 20 minutes interview that focused on childhood immunization. Whatever information you provide it was kept confidentially and to assure that I will use code number , name is will not be written and in addition the document will not be shared with anyone other.

Do you agree? Yes _____

No _____

Verbal informed consent form

I briefly informed and clearly understood the objectives, the associated risk and benefit of the study was conducted by Daniel Erchafo. 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 interviewee _____ Address _____ p.No _____ sig _____

Name of principal investigator Daniel Erchafo

E-mail danielerchafo@gmail.com

Mobile no 0910481795/0961448070

Address of research ethics committee

Phone no _____

E-mail _____

P.O. Box _____

QUANTITATIVE QUESTIONNAIRE (ENGLISH VERSION)
PART ONE FOR QUANTITATIVE

Mothers with child ID number _____ Collected by _____ name of HP _____

1. CHARACTERSTICS OF RESPONDANTS

S NO	CHARACTERSTICS OF RESPONDANTS	
101	Sex of respondent	1.male 2. Female
102	Immunization status of child	1 fully 2 .Up to date immunization 3.not Up to date immunization
103	Age of the mother	
104	Age of child	
105	Religion	1. Muslim 2.Orthodox 3.Protestant 4. Catholic 5.others
106	Educational status	1. not formal 2.primary (1-8) 3.Secondary (9-12) 4. Diploma 5.degree and above
107	Occupational status	1 house wife 2.gov't employ 3.merchants 4.other -----
108	Marital status.	1. Married. 2. divorced 3, widowed

2. Knowledge and awareness of mother about immunization

S NO	Knowledge and awareness of mother about immunization	
201	have you heard about EPI target diseases?	1.yes 2.no
202	From where have you heard the information?	1. health institution 2.media 3.other-----
203	Do you know some of EPI target disease?	1.yes 2.no
204	If yes which one are vaccine preventable diseases?	1. Diphtheria, Pertussis, Tetanus, Measles, Poliomyelitis, Tuberculosis, pneumonia, HepB, Haemophilis influenza typeb
		2. Leprosy, HIV/AIDs, diabetic mellitus, hypertension, trachoma....
205	Is it possible to protect infectious disease by vaccines?	1.yes 2.no
206	Is it necessary to vaccinate Breast feeding child?	1.yes 2.no
207	Do you agree to immunize your baby full dose?	1.Yes 2.no
208	Do you know immunization appointment schedule?	1.yes 2.no
209	if yes which one is an appointment programme for DTP-HepB1-Hib1, OPV1, PCV1, Rota1 ?	1.6weeks of age
		2.14 weeks of age
2010	do you keep an appointment schedule?	1.yes 2.no
2011	Are you happy when your child got vaccine?	1.yes 2.no

3.health care process questions

S NO	health care process questions	
302	Did the health team greet you?	1.yes 2.no
303	Did they ask the service that you want?	1.yes 2.no
304	Are you given information about vaccine?	1.yes 2.no
305	was there appointment for today?	1.yes 2.no
306	Did the health care worker tell you the type of the Vaccine your child taken?	1.yes 2.no
307	Did the health care worker tell you the number of dose of the Vaccine your child taken?	1.yes 2.no
308	Did the health care worker tell you appointment for the next?	1.yes 2.no

4. Access Factors question categories variable

S NO	Access Factors question categories variable	
401	The distance to health facility	-----
402	Number of visits to health facility	-----
403	Reason of visit for today:	1 .Immunization
		2 .immunization and other purposes
404	Is there waiting place?	1. Yes 2.no
405	Is waiting place clean	1.yes 2.no
406	For how long you Wait? (Time minutes):	-----
407	Time spent for Vaccination?	-----
408	Is there any payment in the health facility for vaccine?	1. Yes 2.NO

5. Quality of Care Factors tools check list

Quality of Care Factors tools check list	Poor	Fair	Good	very good	Excellent
501. health education on immunization					
502 . waiting time					
503 . provision of setting and setting arrangement					
504 . staff attitude to clients					
505. availability of vaccination					
506. cost of service					
507. working days of care providers					
508. . HEWs clearing up about adverse effects of vaccination					
509. Cleanliness of waiting area					
510. registration and documentation of children					
511. . proper location of health facility					
512. Skills of care provider					
513.adverse effect of vaccine					
514.benefits of vaccine					
Overall rating of services					

PART TWO

INFORMATION SHEET FOR IN-DEPTH INTERVIEW

Guides for in-depth interview for health care providers

- i. Personal and work characteristics
- ii. Mothers according to their knowledge about child immunization and their attitudes about vaccinating children
- iii. in depth interview point to be raise on session

Semi structured question for health care provider in depth interview

1. Do you believe that your clients are satisfied in the service you provided?
2. How do you see clients satisfaction on EPI service that you provide
3. How do you evaluate the attitude and perception of mother who come for child vaccination?
4. What hinder the immunization service delivery system?
5. How do you see the immunization service accessibility?
6. How do you improve the service delivery system

Personal and work characteristics of the studied heath care providers in the health facility.

Variables	Categories
Which strategy do you provide vaccination	1.static 2 .outreach 3.both
How many days do you provide immunization service?	-----
How long you worked in the health facility(year):	-----
How many times Have you received training on immunization?	1 yes 2.no

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

How do you check quality of immunization and what equipments do you use for vaccination?

How would you see awareness of your clients about immunization program?

How about vaccine side effect to clients ?

What about health information before vaccinating child?

What mechanisms do you use in order to minimize waiting times of your clients?

FOR Mothers: how do you see the manner of care providers?

Do care provider discuss with you about vaccine ?

What makes you to immunize your child?

How do you see the accessibility of services?

awwaansaanchi tamo.i mu'uta

xmmaatise: xumma gattaka'a/xumma hossakka.a aade

I summi_____ heechchi beyyi_____

An abbachi Daanieel Ercaafina Jimmi unvese'iinchi la'm digre'i losaanch ka ki.nnuwwi hegeegonne saarrayyima soorooboolli ihubikkina mat inkiino.owiixxaa'noomula.sooroobimmi horoor wochimmi amo'I ciiluwwi kittibaatanne hinka.nna liiramookko liiramoobee.isa issoo luwwi mah maha yoohaanonette.

Soroobimminam ka hegeego doo.llamu mashika.i adi.l minii adilinne hara.mmamma baxoo minii ciiluwwi fayya'oom bikkina horoor woshshi issamaa baxamoolli ihu bikkinatte. Eebikkina ki'nnuwwi uwwitakkam fooraam woshi Araqa awwaaadoo bikkina keese doo'llinaamo uwwitoo dabacham ayyim la'oo bee'ane la.oo bee'isiname kissummi kitaabamooyyo mulli mannina kurimmimm fokko.o. eebikkina 20 daqiiq qaxa masso xa'mmicha xa'mminoomo atim mah baddimmim bee'eka dabacha uwwitootto

iittatakkamo? eeyya_____

iittamoomoyyo_____

galaxxoommo!!!

QUANTITATIVE QUESTIONNAIRE (HADIYYISA VERSION)
LUXXI BAXXANCHA

A.X _____ WIXXAA'ANCHI SUMMA _____ QABALE'L
SUMMA _____

1. XA'MMAA'NNI HAALATO KITTIBAAXXI BIKKINA

S no	
101	Kittibaatina woru manch aalibacha 1.goonccho 2.meenticho
102	Ciilich kittibaaxxi haalato 1 wo'mma 2 kollo 3. Massukkuyyi yookko
103	Amo'I umura
104	Ciil umura
105	Amma'nnato 1. islaama 2.Orthodokisa 3.Protestaanta 4. Mullane
106	Losa'n haalata 1. Losubee'ane 2.luxxane (1-8) 3.la'mmane (9-12) 4. Diploma 5.digre'ee hanaanette
107	Bax haalato 1 mi'nni amatte 2.adi'lli baxaanchotte 3.daddaraano 4.mullane
108	Mine issimmi haalato. 1. Mi'n anninem yoo'o. 2.annani ihamaakko 3, mi'n an lehaakko

2. AMO'I KITTIBAAXXI BIKKINA KEENNANCH MU'UTA

201 Kittibaatinne hoorakkeena xanakkam jabbi bikkina macceessa? 1 eeyya 2 macceesumoyyo

202. hannii macceessitto ? 1. Fayya'ooma egechi minii 2.miida'ii 3.mulli beyyii

203. kittibatinne hoo'llamakena xanakkam jabbo laqqoo? 1. Eeyya 2.la'oommoyyo

204. laqqitlas hinka jabbo ? 1.site'I qophpha, qakke'e, Teetanoosa, shifito, Pooliyyo'o, shiinqa,
qadafa'lli jabbo, afa'lli jabbo, ganshisa issoo jabbo 2.shishiro, HIV/eesa, sukka'lli jabbo,xiiqqi
gaffe'icha, tirakooma....

205. mannii mannanne higoo bee'isa hoorakkeena xanakkamo? 1. eeyya 2. xanamooyyo

206. anuuna iicoo cilia kattabimmi danaammo ? 1 eeyya 2 .danaamoyyo

207. ki ciil hundame kittibata guulona iittitoo? 1 eeyya 2.guullisoomoyyo

208. kittibaaxxi qaxaro'I balla laqoo? 1. eeyya 2 la'oomoyyo

209.laqqittilas site.i qoppika shifixxeka qadafa'lli jabbikaa qakke'i jabbika hinkammne uwwima asheerakkamo? 1. qaramukkanni loh saantanne(mat aganii lasonne) 2. Qaramukkanni soor aga'nni lasage

2010.kittibaaxxi qaxaro'I balla eggetoo? 1 eeyya 2 egeroomoyyo

2011. ki ciil kitibaata aa'ukuyyi liiranta? 1. Eeyya 2. liiramumoyyo

3.kittibaata uwwakko.i amma'nni xa'mmichuwwa

301. kittibaata uwwitam keen xummaatisamo? 1. eeyya. 2. Xummaatisamoyyo 302
maha hassida'e xa'mmamaa? 1.eeyyaa 2.xa'mamukkoyyo

303. kittibaata uwwitam ammane mee'anda'e kuttamo ? 1.kuttamo 2,kuttamoyyo

304. kittibaaxxi bikkina losano uwwitamo? 1 eeyya 2. uwwitamoyyo

305. kittibaaxxi qaxaro.i balla kuttamo? 1. eeyya 2.kuttamoyyo

306. kittibaata uwwito'I ammane hinkanda'e kutta'a ? 1. eeyya 2. Kutto'oyyo

307. kittibaata uwwito'I ammane mee'anda'e kutta'a? 1 eeyya2. Kutto'oyyo

308.kalasage qaxaro'I balli hee'aa? 1 eeyya 2. guullaakko

4.hincixxi bikkina hincu xa'mmichuwwa

401. ki ciil kittibaata hannonne masukkok 1.xeena kellanne 2.xeena.i xaaba'ane 3'minenne

402. xeena'I kelli/xaaba'I hinkaa'nni sa'aata masso 1.<15 daqiiqa 2.15-29 daqiiqa 3.30-60 daqiiqa
4.>60 daqiiqa

403. xeena'I xaaba'a teim kella hinkaa'nni ammane matta?1.1-4 kore 2.>=5kore

404. xeena'n kella/xaaba'I mahina mattoo?: 1 .kittibaatina 2 . I quuxxianame

405. xeena'I kella/xaab'a mattoo ammane kittibaat hoffe.aa la'oo? 1. eeyya 2. La.ooyyo

406. xeena kellanne/xaaba'ane hnkaa'nni ammane egessisamo? (daqiiqinne): -----

407. ki ciil kittibaata Massukkuyyi hinkaa'nni daqiiqa egeessiiso? 1. <5 daqiiqa 2.5-10 daqiiqa 3
 .>10 daqiiqa

408. hinkide xeena'I kellanne miqisamoo? 1. Eeyya 2.miqisamooyyo

5.UWWAMU AWWAAXXI BIKKINA UWWAKKAM KEENANCHA

Uwwamu awwaxxi bikkina uwwakkam keenaanchi mu'uta	Jora	Lambe'aa ncho	Danaa mo	Araqa danaamo	Araqii Araqa danaamo
501. kittibaaxxi bikkina losano uwwimanne					
502 .egassiisimmi ammane					
503 . egerakkam beyyi					
504 . baxaan'n haalato					
505. kittibaaxxi siidamcha					
506. kittibaaxxi miqo'o					
507. baxxaan baxamoo ammane					
508. baxaan mat mat kittibaaxxi baddimmi bikkina uwwamo losano					
509. egerakkam beyyii muccuroo'm bikkina					
510. ciiluwwi bikkina kitaabakkam maxxaf bikkina					
511. fayya'oom eggachi mi'n hincixxi bikkina					
512. baxxa.n lachi bikkina					
513.kittibaaxxi hawwoji					
514 kittibaaxxi .awwaad					
Lule.i keennato'o					

BAXXANCH LAMO

2. HARAARISA HINCUCU AWWAANSAANCHI TAMO'I MU'UTA

BAXAA'N BIKKINA HINCUCU AWWANSAANCH MU'UTA

- iv. Baxaanch haalato
- v. Baxxaanch uwwoo awwaxxi bikkina hincucuu xa'mmichchuwwa
- vi. Haraarisa baaxaanina hincucuu atoorachcha

Wixxubee'I atoorachcha baxaaninne

- 3. Ki baxoo awwaxxoo manni uwwitoo baxonne danaamisa goddaakkoo yittaa amma'nnitoo?
- 4. Kittibaaxxi bikkina ixuwwi hasan hinkide moo'lloo?
- 3. Amo'I kittibaatina yoo lachchi hasan hinkidette?
- 4. Amo.i ciiluwwi kattabisamoobee'isa hooroo luwwi mah maha?
- 5. hinkide kittibaata uwwitoo ammane awwonsa danaamisa moo'loo?
- 6. uwwitoo awwaxxi hincee'nni bike hinkide moo'lloo?

baxaa.nni haalato

mu'uta	Baxxancha
hannonne kittibaata uwwitootto:	Minii minene 2 .Fayya'ooma egechi minenette
Kittibaata uwwookkok mee balla	-----
Hinkaa'ni hiincho baxxaa ?	-----
Silixana'a massitaa?	1 eeyya 2.massumoyyo

HARAAR BAXAA'NNI BIKKINA ATOORARIMMINA HINCUCU XA.MMICHCHA

Kittibaata aalo'isa uwwimmi bikkina laqqoo 1. eeyya 2. La'oomoyyo

Kittibaata uwwakkami amma'nni bikkina hinkidette?: 1. eeyya 2. La'oomoyyo

Kittibaaxxi masha'inne lobakat ammane iciil hawwodameena xanookko yoo amo.i yookko eebikkina laqqoo luwwi yoo?1.eeyya 2. La'oom luwwi bee'e

kalasage kittibaat awwaaadoo hinkide eddeena xantoo? Kittibaaxxi bikkina atoorassamoo?

Ki ciila kattabisoo'isa issuk luwwi mah maha?

Beyyi abbisoom hinkidette?

ASSURANCE OF PRINCIPAL INVESTIGATOR

The undersigned agrees to accept responsibility for the scientific ethical and technical conduct of the research project and for provision of required progress reports as per terms and conditions of the Faculty of Public Health in effect at the time of grant is forwarded as the result of this application.

Name of the student: _____

Date. _____

Signature _____

APPROVAL OF THE FIRST ADVISOR

Name of the first advisor: _____

Date. _____

Signature _____

Name of the second advisor _____

Date _____ signature _____